ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

NORTHVILLE STATE HOSPITAL
NORTHVILLE, MICHIGAN
E. R. Little Co., *Engineers*
O'Dell, Hewlett & Luckenbaugh, *Architects*
Drake-Avery Co., *Fabricators*
Stanley Carter, *Fabricator*

IN THE NATION'S LARGEST RADIANT HEATED HOSPITAL —BYERS WROUGHT IRON PIPE

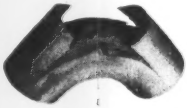
SAFEGUARDS THE HEATING AND 6 OTHER SERVICES

In addition to its architectural distinction, this hospital is notable for its radiant heating system—an estimated total of 600,000 feet of genuine wrought iron pipe will be used for this service making it the largest radiant heating system ever installed in a hospital. In the Medical Unit shown above, over 130,000 feet already has been installed. The system, utilizing Byers Wrought Iron pipe, is designed to produce approximately two-thirds of the necessary heat. A ventilating system, taking heat from steam coils, makes up the balance. The radiant heating system is controlled by means of outdoor thermostatic equipment regulating the water temperature, and indoor zone thermostatic equipment operating zone pumps. Byers Wrought Iron pipe was also used in all hot and cold water lines, 3-inch and smaller; soil lines; waste and vent lines above ground; and hot water and hot recirculating lines in the tunnel piping. E. R. Little Company, Inc., are Engineers on the project.

The specifiers followed sound, proven practice by specifying genuine wrought iron. This material is serving in the oldest installations in the country, and its durability is further confirmed by previous records of long life under identical service conditions.

Our booklet, THE ABC's OF WROUGHT IRON tells the what, how, and where of genuine wrought iron. Ask for a copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, N. Y.



Why Genuine Wrought Iron Lasts

This notch-fracture test specimen illustrates the unusual fibrous structure of genuine wrought iron—which is responsible for the unusual corrosion resistance of the material. Tiny threads of glass-like silicate slag, distributed through the body of high-purity iron, halt and disperse corrosive attack, and discourage pitting and penetration. They also anchor the initial protective scale, which shields the underlying metal.

BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

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The Hard Rock Rib is the perfect companion tire for front wheels in rock work. It has the same cord body, same shoulder and sidewall as the Hard Rock Lug, provides easier steering and smooth rolling on even the roughest jobs.

Proof? *More tons are hauled on Goodyear truck tires than on any other kind!*

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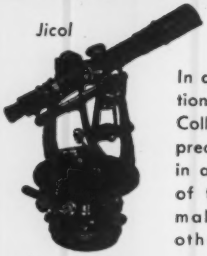

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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 146 MAY 10, 1951 No. 19

WALDO G. BOWMAN
Editor

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Number of copies of this issue printed 47,556

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Domestic News Bureaus—Atlanta, Chicago, Cleveland, Detroit, Houston, Los Angeles, San Francisco, Washington. Correspondents in 71 cities in the United States, Canada and Mexico.

Foreign News Bureaus—London, Frankfurt, Paris, Moscow, Tokyo, Bombay, Melbourne, Rio de Janeiro, Mexico City, *Correspondents*—Athens, Rome, Caracas, Buenos Aires, Santiago, Shanghai, Zurich, Johannesburg and 40 other cities.

ROBERT F. BOGER
Publisher

May 10, 1951 ENGINEERING NEWS-RECORD Vol. 146—No. 19

Member ABC and ABP

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 North Broadway, Albany 1, N. Y.**

Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., N. Y. 18, N. Y. Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerard, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Engineering News-Record—Subscription Service, 99-129 N. Broadway, Albany, N. Y., or 330 W. 42nd St., New York 18, N. Y. Allow ten days for change of address. Please indicate position and company connection on all subscription orders.

Single copies 35¢. Subscription rates—United States and possessions, $6.00 a year; $9.00 for two years; $12.00 for three years. **Canada**, $8.00 a year; $12.00 for two years; $16.00 for three years. Pan American countries, $10.00 a year; $16.00 for two years; $20.00 for three years. All other countries, $20.00 a year; $30.00 for two years; $40.00 for three years. Entered as second class matter October 29, 1936, at the Post Office at Albany, N. Y., under Act of Mar. 3, 1879. Printed in U. S. A.

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THIRTY-NINE repeat orders demonstrate a lot of performance—and it must have been satisfactory performance too.

Brown & Root, Inc., know equipment. They can have any Shovel, Crane, Dragline or Pullshovel they want—and they have bought their fortieth Northwest.

They have had them in light digging and heavy (the one in the picture is digging *granite*).

Add it up for yourself! A Shovel can be a real source of profit or a colossal headache and there is a lot more than the price you pay to be considered. The experience of Northwest users is the best guide there is and when outfits like Brown & Root, Inc., put their money on Northwest you can be sure Northwests will make money for you. Plan ahead now and follow the Northwest Crowd.

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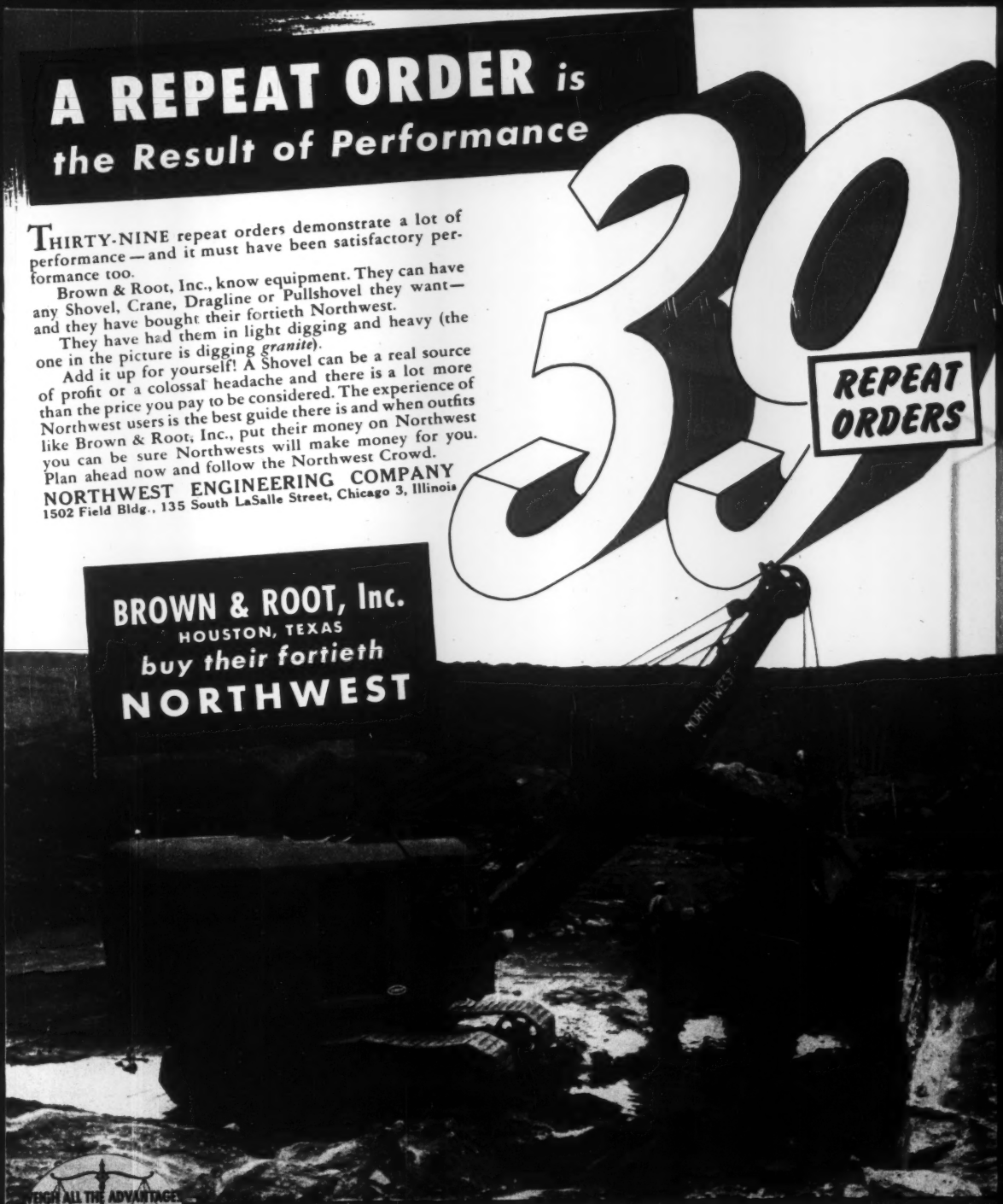

NORTHWEST

CRAWLER and TRUCK MOUNTED SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

C TOURNAROCKER boosts production 38% for McGraw Construction

In dump position, back end of Rocker body is below rear wheels . . . bowl rests on edge of bank . . . loads dump clear. Drive wheels are always on firm ground.

NEW . . . C Tournarockers now have 18-ton body increasing capacity by 12½%. Prime movers with Tournamatic transmission and torque converters are also available, as well as the "Roadsters" with their heavy-duty, truck-type transmission. Performance figures reported here were made with earlier 16-ton Roadster units.

Here's another time study from McGraw's records: During a 2½-hour period, the C Tournarocker hauled 1844 cu. yds. of slag over 2500' one-way distance. That's 69.6 pay yards per hour.

Tournarocker—Trademark Reg. U.S. Pat. Off. C146b

On steel mill expansion in southern Ohio, McGraw Construction Company, Inc. of Middletown had 200,000 cubic yards of slag to move from new building areas. Material was shovel-loaded into 2 conventional 15-ton dump trucks and one 16-ton, rear-dump C Tournarocker . . . then hauled about half a mile for use as railroad fill. Contractor's records, covering a period of 1080 working hours, show the Tournarocker delivered 4618 loads, or 59,430 cubic yards . . . an output 38% greater than either of the 2 trucks. Both trucks were loaded by the same 1½-yd. shovel and worked the same haul and the same length of time as the Tournarocker, yet one moved only 43,000 yards; the other, 41,800 yards. Of the 144,230 yards placed on the fill by all 3 haul units, Tournarocker handled 41% . . . the first truck, 30% . . . the second truck, 29%.

5000′ cycle every 12 minutes

On a typical 2500-ft. one-way haul, the high-speed "C" delivered 13 pay yards of slag every 12 minutes. That's 5 loads . . . 65 cubic yards hourly . . . or about 120 tons of the 3700-lb. material per hour for McGraw Construction Company's LeTourneau rear-dump hauler.

Superintendent Frank Conner stressed high mechanical efficiency and exceptional mobility as the main reasons for Tournarocker's greater output. "The unit has been 95% efficient," he said. "Its small turning radius (13'9") was a decided advantage on the fill. No widening or turn-around expedients were necessary."

Consider what this fast-hauling ability can mean on *your* job. Get all the facts . . . write or ask your LeTourneau Distributor about 35 m.p.h. Tournarocker TODAY.

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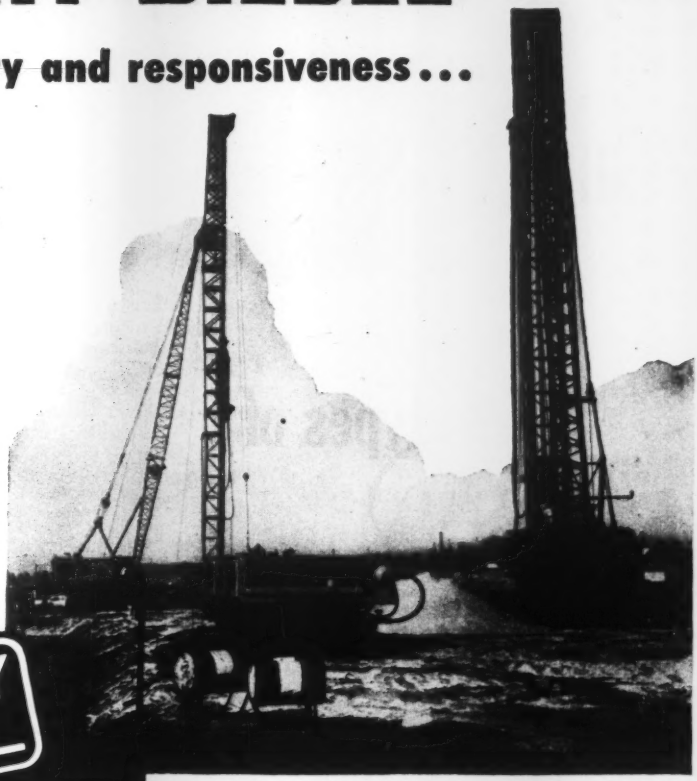

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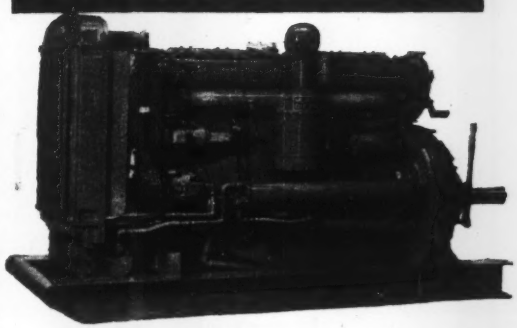

"Plenty of air when you need it" requires "plenty of power" and it has to be the right kind of power . . . dependable, economical and responsive—and that's just the kind you get with Murphy Diesels. The job on which the photograph above was made is a good example of the need for good power and plenty of air. In the salt marshes on the New Jersey Turnpike four Murphy Diesel powered 600 cu. ft. Le Roi compressors supply air used to fill 80 ft. casings with sand under pressure.

Whatever your job, if you want dependable, economical and responsive power it will pay you to find out more about Murphy Diesel Power. Complete information on Murphy Diesel design is given in the booklet *"10 Questions to Ask a Diesel Engine Salesman"*. Ask your Murphy Diesel Dealer for a copy or write direct.

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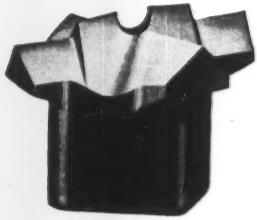

and a complete Rock Bit Engineering Service!

WHICH type of rock bit is best for your particular job? If you want an impartial answer, go to an unbiased source—the Timken Company. We're the only manufacturer who has no axe to grind for any one type—because we make *all three* types of rock bits:

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● Today's all-out effort in National Defense and civilian supply places an ever-increasing strain on truck equipment. Fact is, up to 75% of all incoming and outgoing materials at the nation's defense plants are now hauled on motor trucks.

Under such emergency conditions "Built Like A Mack" takes on added significance . . . means trucks that stand up better under the punishing wear and tear of bigger loads and more intensive service.

Wherever they operate . . . in whatever phase of the national economy . . . Mack trucks have one thing in common. Being Macks—they're built to outlast them all—to give *long-lasting* economy and reliability. That's a basic Mack advantage, vitally important during periods of uncertainty when replacements may be difficult to obtain.

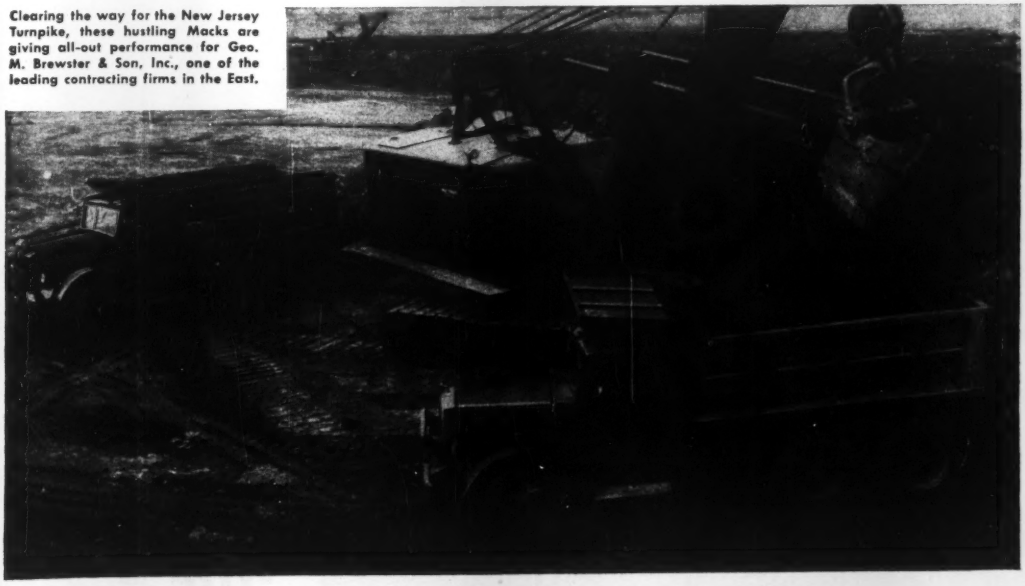
Your nearest Mack branch or distributor has the right Mack for your particular line of business—a truck that's built better to give you benefits in low-cost maintenance and peak performance for many years to come.

Mack TRUCKS

. . . outlast them all

Mack Trucks, Empire State Bldg., New York 1, New York. Factories at Allentown, Pa.; Plainfield, N. J.; Long Island City, N. Y. Factory branches and distributors in all principal cities for service and parts. In Canada: Mack Trucks of Canada, Ltd.

Clearing the way for the New Jersey Turnpike, these hustling Macks are giving all-out performance for Geo. M. Brewster & Son, Inc., one of the leading contracting firms in the East.



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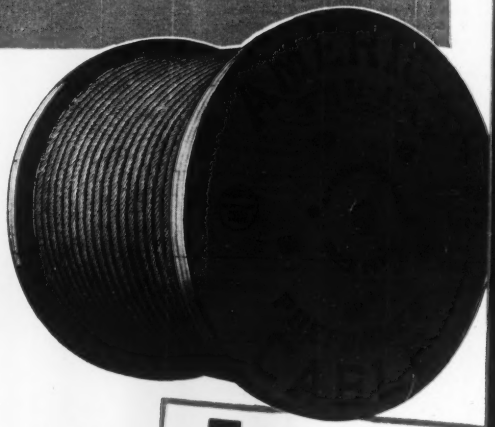

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NEWS BRIEFS

Nobody loves a sewage plant—Alki Point is an historic spot in Seattle, Wash. The city's founders landed there 100 years ago. Recently it received a new distinction when it was approved by the city council as the site for a sewage disposal plant. At once owners of nearby property rose up and said, "This historic Plymouth Rock of the West Coast belongs to all Seattle, Washington State and the nation, and should not be made into a sewage rookery." However, some said they wouldn't mind giving up their property for a hospital or a sanitarium. City Engineer R. W. Finke, pointing out that only Alki Point has the currents to carry away the diluted sewage, refused to concede that the plant would damage adjacent property. Meanwhile, city officials were saying as little as possible, hoping that the storm would blow over. Now irate citizens seek a city-wide vote.

New use for X-rays—A news item from Portland, Ore., says that X-rays are now being used on logs and heavy timbers to find defects which are hidden from the naked eye by bark and the outer wood.

Distaff contractor—Massachusetts has a woman construction boss and she's easy to look at and get along with too. This slender, dark-haired commander of bulldozer operators, masons, carpenters, electricians, painters and plumbers, is Miss Sarah E. Scenna of Malden. As superintendent of the Alpine Construction Co., she supervises the building of houses cheaper by the dozen. Just now she is working on a project in Fitchburg. She estimates and orders required materials, hires and if need be, fires. She comes from a family of builders. Miss Scenna says men don't mind taking orders from a woman if she knows how to give them. But she is firm about having things done right. "I try to keep the men feeling that they are superior. At the same time I try to earn their respect," she says.

Annexation fight—An internecine legal struggle is going on between Fort Wayne, Ind., (pop. 132,840) and its little neighbor, New Haven (pop. 2,000) to decide which municipality shall annex the valuable East Side industrial area with a tax valuation of $16,000,000. New Haven and Adams Township need the tax base for their consolidated school system, while the big industries located there would prefer the status quo as their present tax

(Continued on page 14)

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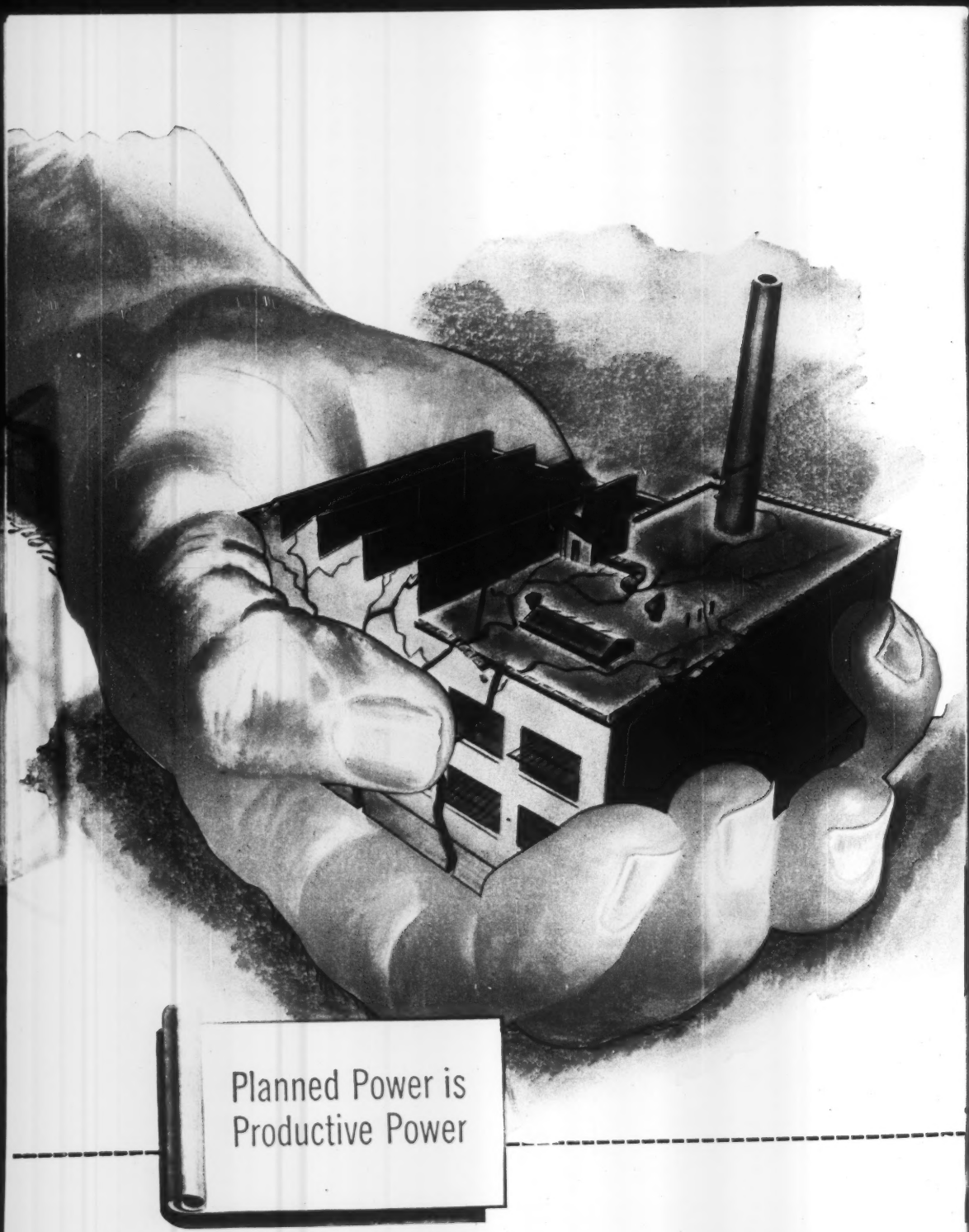
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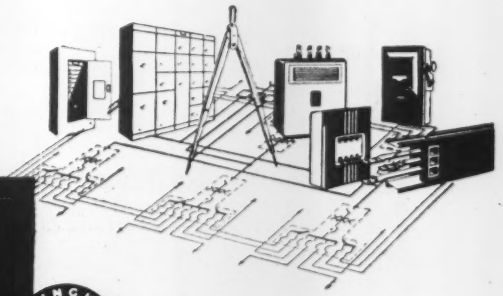

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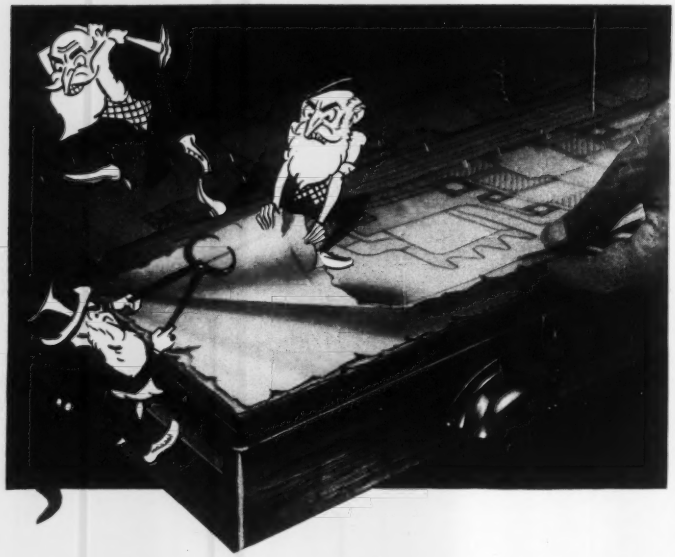

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rate is $1.84 as against a current Fort Wayne rate of $4.00. So those are the reasons for various legal developments in the Allen County Courts.

Man of one idea—The lifelong ambition of one Japanese finally has resulted in a tunnel being built through a mountain in the middle of Saka village, Hiroshima prefecture, Japan. Tamekichi Une, 61, had the tunnel in mind when he left Saka village at the age of 16 to make his fortune in Hawaii. He returned to the town in 1949 and contributed his entire savings, $28,000, to the project. Other villagers were so moved they volunteered their services and worked with Une to build the tunnel to facilitate transportation and traffic. It was completed March 25.

New England tradition—An old-fashioned covered wooden bridge was torn down in Sheffield, Mass., recently as unsafe. But residents there wanted to preserve an old New England tradition. So they are going to build a new bridge of just the same type as the old one.

Mandatory parking facilities — New legislation planned by the government of Ontario will permit municipalities to require owners of business buildings to provide off-street parking facilities.

Grand Coulee's predecessor—Man is about to do what nature stopped doing many thousands of years ago—send water flowing through the Grand Coulee in Eastern Washington. The Coulee is the ice age channel of the Columbia River, which now flows some distance to the west. It was carved when giant glaciers formed an ice dam across the river in the same place where Grand Coulee Dam is now. As the glaciers melted, the river returned to its present channel and the ice age channel was stranded high and dry. As the Bureau of Reclamation prepares to pump water into the gorge, it has invited five nationally-known geologists—William Herbert Hobbs of the University of Michigan, Richard Foster Flint of Yale, J. Harlen Bretz of the University of Chicago, Charles Campbell of Washington State College and Ernst Antevs of Globe, Ariz.—to give their opinions as to the length of time since the river was diverted from the gorge. Water will be pumped 280 ft out of the reservoir behind Grand Coulee Dam into the Coulee, 27 mi long. Beginning next year, canals from the lower end of the Coulee will deliver the water to the dry sagebrush lands of the Columbia Basin project, ultimately to 1,029,000 acres.

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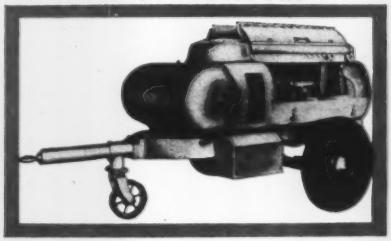
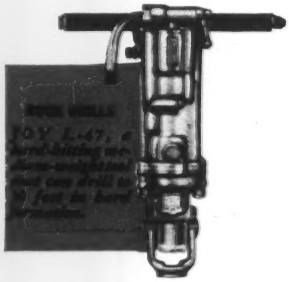
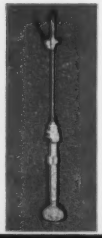




SHEETING DRIVERS

JOY Q-81, an adaptation of the K-81 for driving wood or light steel sheeting.



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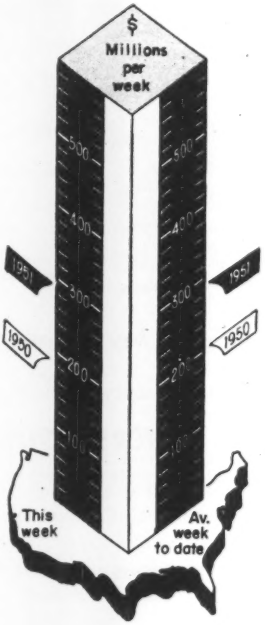
THE CONSTRUCTION WEEK



Amount of contracts let

	Week of May 10 '51	Cumulative 19 wks— 1951	1950	% chge
Federal	$29.1	$826.2	$530.0	+56
State & Mun.	90.9	1,337.6	1,139.6	+17
Total Public	$120.0	$2,163.8	$1,669.6	+30
Total Private	174.8	3,399.4	2,244.5	+51
U. S. Total	**$294.8**	**$5,563.2**	**$3,914.1**	+42

(Other figures of the week, and ENR Index numbers, p. 103)

PNYA LEASING WITHIN LAW?—New York's Port Authority lawyers are busy studying legal angles after real estate interests yelped loudly over PNYA's plans to build and lease general industrial buildings at three metropolitan area airports. PNYA, reaching desperately for revenue-producing facilities to make the airports self-supporting, already gets revenues at the airports from drug stores, newsstands, a bank, beauty parlors. It sees no reason why it shouldn't bring commercial enterprises into leased buildings on the airports. Realtors center their attacks on provisions in the agreements by which PNYA operates the airports, noting that the fields are to be operated for "public purposes."

FUEL FOR FIXED-FEE FIGHT—Impending court action over the New Jersey Turnpike Authority's award of a $7,700,000 cost-plus contract for administration building, restaurants and service facilities (ENR May 3, p. 27) got some added fuel, when the Public Buildings Contractors Association, Inc., a New York group, announced it was "in complete accord" with the protest against the contract award. The Turnpike Authority told a state legislature committee that it was exempt from state rules prohibiting cost-plus contracts. Legislators refused a decision, said the matter was up to the courts. Said H. L. Fischer, president of PBCA: "We want to make our views known. The legality of such action must be challenged. . . . The excuse that . . . a rigid completion schedule dictated . . . the award . . . is refuted . . . by the fact that all other contracts . . . were let as required by New Jersey law. . . . The right of authorities to deviate from accepted legal methods of awarding contracts should be challenged."

QUICKIE FIRMS—Rumors are beginning to be heard of defense construction contracts being given to architect-engineer and contracting firms hurriedly formed for the purpose. At this early stage in the game, when many established companies have not yet been utilized, this spells trouble on the inflation front—according to those with memories of the 1940 defense buildup. The new firms need manpower. The best and easiest place to get it is from existing organizations (at a premium) and construction costs consequently are forced to go up. If the quickie firms lack experience and know-how—as they sometimes do if they stem from political pull—the costs and troubles are apt to be compounded. So say people with memories of the not-too-long-ago.

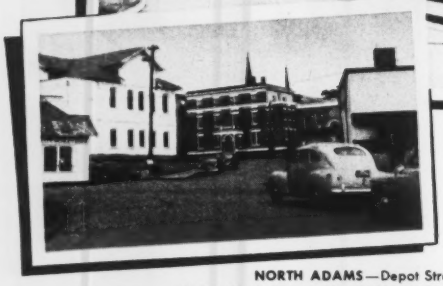
ATOMIC CONSTRUCTION INSPECTION—To correct what it called a "startling weakness" in the construction program of the Atomic Energy Commission, the House Appropriations Committee has urged AEC to hire engineers and architects to check the work of private firms that design and build its projects.

TOLL ROAD GROUP WOULD HAVE GREAT POWERS—Missouri legislators are considering a bill that would put a plan for a system of toll roads before the voters at a general election. The turnpike authority proposed would be managed by a bipartisan commission appointed by the governor. The authority would have—among other powers—the right to order the discontinuance or relocation of any highway that might affect the construction or operation of a turnpike.

WORCESTER — Shrewsbury St. at intersection with Envelope Terrace. Built in 1921. Photos 1922 and 1950.

SHAWSHEEN VILLAGE (above)—Haverhill Street near Route 28. Built 1923. Photos taken in 1924 and 1950.

BOSTON—Commonwealth Avenue just west of Summit Street. Built 1923. Photos taken in 1924 and 1950.



NORTH ADAMS—Depot Street Built in 1920. Photos taken 1922 and 1950.

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Massachusetts—the state that gave our nation many of its most cherished traditions—also can cherish its time-honored concrete streets. Many of these fine old pavements, having served for more than a quarter of a century, are still in good condition and ready for many more years of hard use.

The experience in Massachusetts is typical, for all over America there are countless concrete pavements that have given a generation or more of dependable service. Public officials, motorists and taxpayers again and again have found that paving streets and highways with concrete is a good investment in the future. Concrete is reasonable in first cost and it serves far longer with less maintenance. The all-important result: ***low annual cost.*** With concrete pavements it's truly a case of "here today —*and still here tomorrow*."

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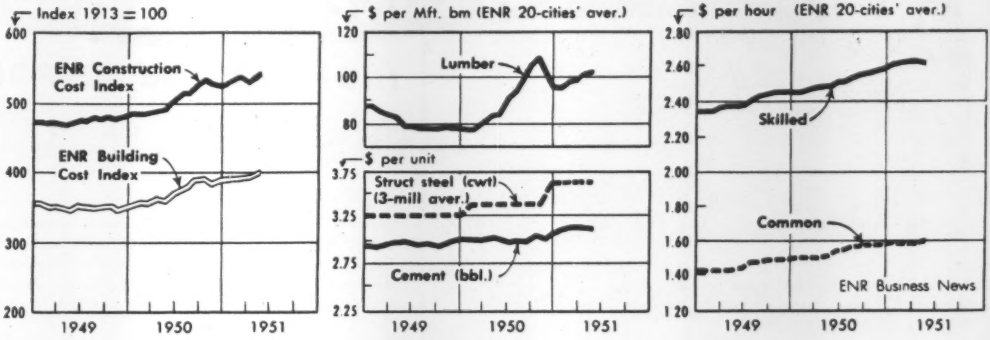
MAY CONSTRUCTION SCOREBOARD



ENR INDEXES (1913 = 100)	May '51	Apr. '51	% Change	May '50	% Change
Construction Cost	543.90	538.69	+0.9	496.55	+ 9.5
Building Cost	402.07	398.78	+0.8	364.27	+10.3
Material Prices (20-cities' average)					
Cement, bulk, per bbl	3.153	3.148	+0.2	2.961	+ 6.5
Structural Steel, (3-mill aver.), per cwt	3.650	3.650	0.0	3.400	+ 7.3
Sand, per ton	2.093	2.090	+0.1	1.968	+ 6.3
Lumber, 2x4 Fir, per M. ft. bm	111.843	111.500	+0.3	93.266	+19.9
Lumber, 2x4 Pine, per M. ft. bm	96.950	96.316	+0.6	80.666	+20.1
Common brick, per M	31.275	31.175	+0.3	28.087	+11.3
Ready-mixed concrete, per c. y	10.900	10.925	−0.2	10.318	+ 5.6
Structural Clay Tile, 3x12x12 per M	143.964	143.339	+0.4	132.900	+ 8.3
WAGE RATES (20-cities' average)					
Common	1.608	1.595	+0.8	1.511	+ 6.4
Skilled (aver. 3 trades)	2.629	2.619	+0.4	2.485	+ 5.8
Bricklayers	2.900	2.895	+0.2	2.756	+ 5.2
Structural Ironworkers	2.581	2.568	+0.5	2.450	+ 5.3
Carpenters	2.408	2.393	+0.6	2.249	+ 7.1

	April			Four Months		
CONTRACTS AWARDED (thous.)	1951	1950	% Change	1951	1950	% Change
Total U. S. (ENR reported)	$1,053,434	$885,044	+ 19.0	$4,997,847	$3,480,193	+ 43.6
Private	558,498	549,861	+ 1.6	3,058,081	2,013,361	+ 51.9
Public	494,936	335,183	+ 47.7	1,939,766	1,466,832	+ 32.2
Federal	230,076	55,741	+312.7	763,263	470,908	+ 62.1
ENR Constr. Volume Index, '13 = 100	515	484	+ 6.4	598	455	+ 31.4
NEW CONSTRUCTION CAPITAL						
Total	476,847	299,653	+ 59.1	4,312,082	1,406,765	+206.5
State & Municipal Bond Sales	296,072	147,219	+101.1	966,432	811,579	+ 19.1
Corporate Security Sales	180,775	152,434	+ 18.6	669,765	595,186	+ 12.5
Federal (non-federal work)	.....	.....	.....	73,425	.....	.....
Federal (federal work)	.....	.....	.....	2,602,460	.....	.....

MATERIAL SHIPMENTS & LABOR SUPPLY	February (F) March (M) 1951	1950	% Change	Two Months (2) Three Months (3) 1951	1950	% Change
Cement, thous. bbls., Bu. of Mines	11,294(F)	9,824(F)	+14.9	23,531(2)	19,456(2)	+20.9
Fabr. Struc. Steel, thous. tons, AISC	195(M)	157(M)	+24.2	541(3)	422(3)	+28.1
Lumber, mil. ft. bm., NLMA	2,884(F)	2,865(F)	+ 0.6	6,083(2)	5,498(2)	+10.6
Lumber Prod., mil. ft. bm., NLMA	2,763(F)	2,463(F)	+12.2	5,768(2)	4,850(2)	+18.9
Contract Constr. Employ., thous. BLS	2,314(M)	1,907(M)	+21.3	(Av.) 2,262(3)	(Av.) 1,896(3)	+19.3

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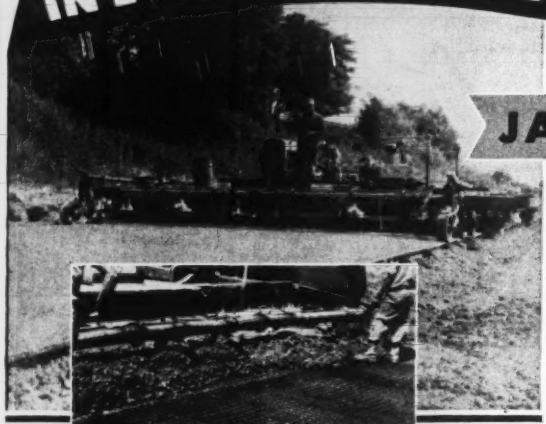

HIGHWAY and AIRPORT

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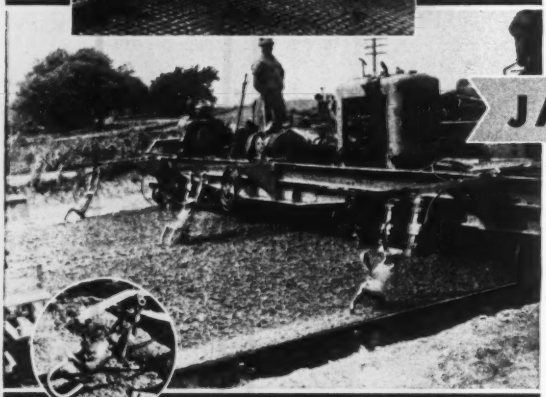
The JACKSON Paving Tube, which is quickly attached to any standard finisher, provides full width internal vibration through full depth of the slab. The harsher mixes are readily made plastic. Important savings in cement can be made, or important gains in compressive strength and durability achieved when no cement reduction is made. Spreading costs are reduced, finishing progress is much more rapid, complete compaction is accomplished and concrete is perfectly puddled at sideforms and joints. It is adaptable to slabs 6" to 24" thick and quickly adjustable from 10' to 25' widths, in the field. May also be attached to standard spreaders for vibrating the first course in thick slab construction. Write for complete details.



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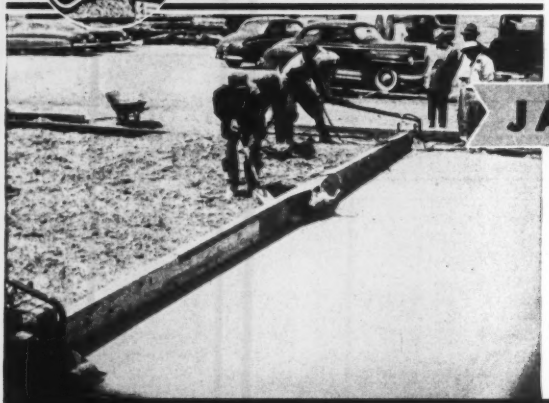

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Emotional economy

IN RECOMMENDING that the budget of the Construction Statistics Division of the U. S. Bureau of Labor Statistics be cut from $655,000 to $150,000, the subcommittee of the House Appropriations Committee let its zeal for economy obscure its judgment. Such a deep cut, if based on careful study of the situation, suggests that the subcommittee felt that the Construction Statistics Division should be abolished, but didn't have the courage to recommend it. A more likely explanation is that this is merely an example of economy by emotion—cut something to make a showing.

The construction information provided by the Bureau of Labor Statistics is widely used by residential builders, materials producers and suppliers, financing institutions and retailers of home furnishings and appliances. Such information—the number of new dwellings coming on the market, how they are financed, what they cost, what materials are being used—is not available elsewhere. Suddenly to remove this source of business guidance would hardly be in the public interest.

Whether the $655,000 budget is too large is another question. Government bureaus have a tendency to grow—they neither die nor fade away—and statistical operations particularly can be carried on and expanded ad infinitum. But to cut the budget of any agency 75% demands that the decision be backed up by careful study and definite conclusions. There is no evidence that the House Appropriations subcommittee cut the construction statistics budget other than on the shallow excuse that it served as a good and politically harmless place to cut.

Road prospects brighter

PROSPECTS for a satisfactory year of road construction and rehabilitation have brightened greatly in the past few weeks. Contracts let during the first three months of 1951 totaled $267 million, which is $5 million above last year's lettings to the same date. Moreover, the Defense Production Administration has just announced that 151,000 tons of steel will be made available to the Bureau of Public Roads for June allotments, as it was in May. If steel allotments continue to be made at this monthly rate they will add up to the 1,800,000 tons estimated by the Bureau of Public Roads as necessary for an effective road-building program this year.

Even more encouraging is the belief in Washington that the top men in the Defense Production Administration are convinced that better highways are essential to the defense program, and that a sustained high annual rate of road building is needed. Also, neither the DPA nor the Department of Defense favors any relaxation of the strict limits on truck overloads set up last December, despite what appear to be persistent efforts on the part of the representatives of trucking interests within the Defense Transportation Administration to get those controls relaxed. During World War II, great damage was done by needless overloading of trucks under the excuse that it was essential to the war effort. That mistake will not be repeated this time if the control system set up last December can be maintained.

Belt tightening unavoidable

ENGINEERS who are going ahead with plans calling for an early start on work not closely connected with the defense program should read carefully a recommendation sent to the nation's bankers by the Voluntary Credit Restraint Committee of the Federal Reserve Board. Stating that the money sought by industries of the country for new plant and equipment has reached the enormous total of $24 billion dollars, the committee tells the bankers to tighten up on loans unrelated to defense. Here is a straw in the wind, if there ever was one.

This $24 billion in plant expansion is 29% above last year's figure. When that fact is set against the announcement that under the Controlled Materials Plan all but 15% of the nation's steel output may be allocated to defense-rated work, it seems obvious that construction not related to defense has a rough road ahead. Already the pinch is being felt. In New York City, for example, school construction is practically at a standstill for want of steel.

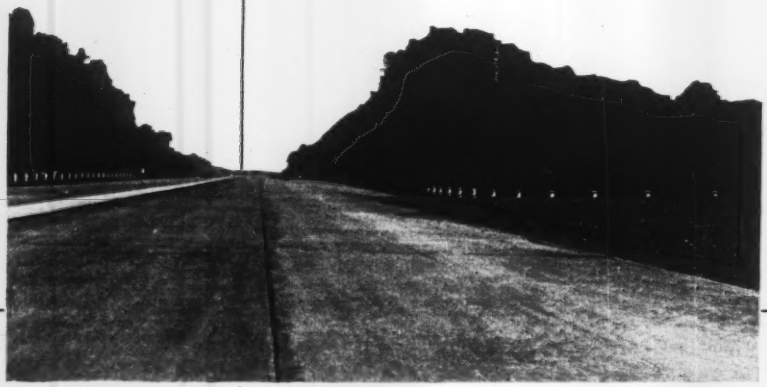
The suggestion in these pages (ENR March 22, p 13) that pollution-control agencies review the orders they have issued calling for early starts on non-defense projects was not well received in some quarters. Yet it was made as a realistic appraisal of a situation that now becomes increasingly clear.

Of course, pollution-control bodies are not the only public agencies that should review their programs. The same applies to plans for public buildings that are not absolutely essential, to parkways, to channels or harbor works, to flood-control and irrigation and to power projects that cannot be brought into service for several years.

If every public agency sits back to wait for someone in Washington to make the decision, the confusion by late summer is going to be appalling. Here is an opportunity for engineers to demonstrate that they do take a more objective view of questions of this kind. By urging the organizations of which they are a part to act now they should have the satisfaction of knowing that they had a part in avoiding an impossible-to-meet demand for scarce materials that must come before the end of the year.

Better for paving work

Less mixing water is needed for a given slump in concrete made with Duraplastic air-entraining portland cement. The result is a more workable, more uniform and more plastic concrete that dumps, spreads and finishes easily. And it allows earlier protection for curing.



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ENR-D-134

ENGINEERING NEWS-RECORD

MAY 10, 1951 VOL. 146 NO. 19

NPA slaps complete controls on all construction work

National Production Authority order demands permits for every type of work—Housing under controls for first time —Put 25-ton limit on steel use

Vincent B. Smith
Washington Staff

Construction got a severe jolt last week. The National Production Authority extended its construction controls to cover every category of public and private work.

Under the agency's new order, no project using more than 25 tons of steel may be started without an NPA permit. (Previously the limit was 50 tons.) There are no exemptions from the all-inclusive licensing requirement. It hits factories, power plants, pipe lines, hospitals, schools and highways, along with every other type of facility.

Since midnight of May 3, when the new rule took effect, any job requiring more than 50,000 lb of steel must get NPA approval before work begins. In figuring the steel total for a job, NPA specifies a long list of products—from structural shapes and reinforcing bars to pipe and nails—enumerated in the agency's iron and steel order M-1.

NPA issued the broad licensing requirement in an amendment of its basic M-4 construction order. Other changes included in the amendment look small by comparison, but they are important.

• **Housing under controls**—Housing is brought under construction controls for the first time. M-4 as amended requires permits for apartment houses over three stories high, above the basement, and for single-family homes that cost more than $35,000 to build. The new restrictions won't be used to hamper ligitimate housing jobs, but apartment house licensing will curb the recent rash of projects designed for easy conversion into hotels or office buildings.

Permits likewise now are mandatory for terminal warehouses and television and radio broadcasting facilities. In a concurrent move last week, NPA also withdrew its exemption of newspaper plants; they are back under the commercial building classification, requiring licenses for construction. Outdoor advertising signs are banned completely; the amendment transferred them from the commercial to the amusement-entertainment list which first came out in the original prohibitory order of Oct. 26, 1950.

• **Misgivings**—Construction leaders greeted the new order with misgivings. The Associate General Contractors of America pointed out that machinery for issuing the permits would have to start functioning promptly if the defense program and essential civilian projects were not to suffer severe delays. AFL spokesmen expressed fear that the order would shrink employment and cause workers to migrate out of places where they will be needed later for defense construction.

In fact, construction people doubted the necessity for the broad extension of controls. This attitude showed up plainly in a meeting of the Construction Industry Advisory Committee with NPA officials on the day before the order was issued. The 20 industry members present passed a resolution opposing any changes that would add restrictions to M-4. There was no reason for imposing more controls, they said.

• **Shortages growing**—Manly Fleischmann, NPA administrator, saw things differently. Explaining the basis for the order, he cited the growing critical shortage of structural steel and overriding need of steel in our defense, defense-supporting, and highly essential civilian programs. The new measures, he said, will regulate and control the distribution of structural steel and steel products used by the construction industry in conjunction with the Controlled Materials Plan.

On CMP, the advisory committee agreed with Fleischmann and his NPA lieutenants. The industry representatives unanimously asked that all construction except private housing be placed under CMP, provided claimant agencies are set up to take care of construction requirements. That's what NPA plans to do (ENR, April 19, p. 23).

Fleischmann expects the new construction controls to start "squeezing some of the water" out of defense and defense-supporting programs even

(*Continued on page 24*)

Forces plan $6.9-billion construction

Cash expenditures for military construction in fiscal year 1952, starting July 1, will amount to $1.9 billion, according to the Defense Department budget submitted to Congress last week by President Truman.

The 1952 figure represents a big increase over the $400-million estimated cash outlay for military construction in the fiscal year now coming to a close.

The $1.9 billion to be expended in fiscal '52 will pay part of the bill for $2.4 billion of military construction already authorized or recommended, plus an additional $4.5 billion soon to be asked for. Added together, the resulting $6.9 billion indicates a heavy carryover of military construction expenditures into fiscal year 1953.

Contract authority already enacted for military construction totals $2.1 billion. Congress has before it a supplemental request for $300 million that is expected to pass soon. Under proposals to be submitted within a few weeks, the military will ask for another $4.5 billion. Congress is expected to approve that request.

• **Distribution**—Out of that $4.5 billion, the Air Force will get $2.5 billion and the Army and Navy $1 billion each. The three services plan to spend $750 million of this construction money during fiscal year 1952. From funds already appropriated and/or in process of approval by Congress, they will spend these additional sums during the same year: Air Force, $600 million; Army, $300 million; and Navy, $250 million. Thus the total cash expenditures for military public works in fiscal '52 are expected to amount to $1.9 billion.

Contract awards will run considerably higher than cash expenditures. With enactment of the additional authority for $4.5 billion of military construction, the three services will attempt to get much of that work under contract during the course of the year.

Construction controls

(*Continued from page 23*)

before CMP takes effect. Steel requirements submitted for both defense and essential civilian programs have been running too high, he believes. Project licensing and CMP together will control the distribution of construction steel and bring requirements into some sort of balance with supply.

• **Highways get less**—It is too early to say what projects will be approved for early construction. Industrial building that does not contribute to the defense effort will certainly be curtailed. The government has repeatedly asked industry to postpone jobs of that kind. In the field of public works, Fleischmann indicated his personal belief that substantial amounts of steel will be made available for hospitals and schools, but "much less than usual" for highway projects.

Chief Mobilizer Charles E. Wilson (director of the Office of Defense Mobilization) has given similar indications during recent months of expected cutbacks in steel for highways. Over the weekend he implied broader curtailment of public works in a letter to governors, mayors and county officials asking them to postpone deferrable projects and to submit proposed borrowings of $1 million or more to the Federal Reserve Board's Voluntary Credit Restraint Committee for clearance.

• **See volume reduced**—Before last week's NPA order came out, construction was headed for a $27-billion year. The new restrictions may reduce the 1951 construction expenditures by a couple of billion—possibly more, depending upon the rigidity with which the restraints are put into application.

NPA's construction advisory group had good reason for opposing the added curbs. In view of the steel industry's capacity to produce structural and reinforcing material, the construction outlook indicated no overtaxing of the potential supply. Under controls in effect before last week, construction spending in the third and fourth quarters of 1951 was expected to drop considerably below last year's figures for the same periods.

But top mobilization officials, looking at the total steel situation, saw the picture in a different light. Now that broader controls have been imposed, construction people will do their part to make the new rules work. They only hope that the processing machinery for handling the large volume of permit applications will be operated promptly and effectively.

Applications for constructing permits under the new order will be made on the same form (NPA F-24) that has been used in applying for commercial building authorizations previously.

Gen. Young quits District as engineer commissioner

Brig. Gen. Gordon R. Young retired last week as engineer commissioner of the District of Columbia. Ill health—plus a recommendation by the physical evaluation board at Walter Reed Hospital—caused him to give up his post seven months before reaching sixty, the retirement age.

His successor will be appointed by President Truman from a recommendation by Maj. Gen. Lewis A. Pick, Chief of Engineers, and approved by Army Chief of Staff Gen. J. Lawton Collins. Meanwhile, the senior assistant engineer commission, Lt. Col. Thomas J. Hayes III, will carry on the duties of the office, as recommended by Gen. Young.

In his five years and nine months as engineer commissioner—the longest term served by an engineer officer in that position since it was created in 1878—Gen. Young assisted the completion of several major projects, including new bridges across the Potomac and Anacostia Rivers, the Whitehurst Freeway, and the du Pont Circle underpass.

He served two years in France during World War I. In the last war he was chief engineer of the Caribbean Defense Command and later commanding general of Fort Belvoir.

Among his earlier assignments with the Corps of Engineers, Gen. Young served as district engineer at Charleston, S. C., Kansas City, Mo., and Norfolk, Va. In the early 1940's, he became department engineer of the Panama Canal, where he was successively district and division engineer.

Price control not clear to equipment companies

Although only an inkling of Price Stabilizer Michael V. DiSalle's new pricing order concerning construction equipment had reached the manufacturers early this week, some in the industry have expressed concern over its workability.

Some manufacturers believe that any attempt at this time to roll prices backward or forward, based on a complicated procedure supposedly included in the new pricing order, basically is unsound and unworkable.

One line of thinking within the industry is that the government can't expect peak production of construction equipment while at the same time requiring the manufacturers to absorb increased production costs.

If the new price controls affecting construction equipment are too restrictive, according to Julian R. Steelman, president of the Construction Industry Manufacturers Association, some manufacturers may find it necessary to cut the volume of their present production back of the 1949-50 levels to keep from suffering a loss.

There appears to be a divergence of opinion among the manufacturers as to what should be done to clear up the current confusion on pricing of equipment. Some believe an all-out effort should be exerted to make any suggested program work. Others think a "hands-off" policy may be best at present, in the belief that confusion will mount so rapidly that appropriate pricing relief will be granted the manufacturers as an incentive for them to operate at peak capacity, limited only by availability of materials.

The construction equipment manufacturing industry, in general, favors any sensible price control that can be adopted under prevailing costs.

Hyland becomes president of the Moles in New York

Richard V. Hyland, of Madigan-Hyland, New York consulting engineers, is the new president of The Moles, an association of New York heavy construction men. He succeeds James F. Salmon, New York manager of the Arundel Corp.

Hyland and M. J. Madigan joined forces in 1929 to form the present consulting firm. At first, they specialized in cost estimates and analyses of public works contracts in the East.

Since the mid-30's Madigan-Hyland has been consultant to such organizations as the New York Central Railroad, Triborough Bridge and Tunnel Authority and the cities of New York and Los Angeles.

AWWA debates national water policy; acts for fair share of short material

Waterworks men review, censure nation's water policy in Miami—See hope of strong claimant agency—Assn. expands fluoride stand

Arthur J. Fox, Jr.
Assistant Editor

Wolman vs. Morris was the main event in Miami last week as the American Water Works Association drew top talent from opposing camps to give national water policy—or lack of it—a lively going-over.

Samuel B. Morris, general manager and chief engineer of Los Angeles' Department of Water and Power, who served on the President's Water Resources Policy Commission, touched the high spots in a quick review of what that group recommended in its three-volume report (ENR Dec. 21, 1950, p. 23).

We must stop and re-examine policies under which present works have been built; and now, while we are at war, is a good time, said Morris.

• **Beyond engineering**—Abel Wolman, Professor of sanitary engineering at Johns Hopkins University, asserting national water policy is not just an engineering problem but one of social philosophy, claimed none-the-less that such policy must have the orderliness that engineers, "the last surviving quantitative Indians in this country," can give it.

The "grant-in-aid philosophy" of today stems from the 1934-42 period of high emotion, last period in which major decisions should have been made, said Wolman. And now, with no single uniform federal policy covering land and water, he stated, expenditures for water supply and water use projects have reached unintelligible dollar totals—more money having been spent in less than four years since 1947 than in the 150 years of prior U. S. history.

"There's a limitation of money. That's an astonishing thing to say," quipped Wolman, as he urged a return to the benefit cost ratio for measuring project feasibility. He warned that desirable local responsibility would be lost in basinwide water resource development under federal agency control; asked that proposed legislation be made public as recommended by the President's commission, now, before drastic alteration by interested federal departments; and pleaded that more attention be given Engineers Joint Council's recommendations to the President's study group (ENR July 6, 1950, p. 21).

• **On claimant agencies**—"How long will the government continue to ignore the waterworks industry and its need for a suitable claimant agency," asked Wendell La Due, Akron (Ohio) water and sewerage superintendent, in opening a session on critical materials and civil defense.

The nearest thing to an answer came from W. J. Orchard, general manager of Wallace & Tiernam Co. and sparkplug in the concerted effort by water, sewage, public health and equipment manufacturer interests to gain recognition of their materials needs.

"We think we know we are, but we don't know," said Orchard in what—although not completely satisfying—was perhaps the most encouraging progress report he has been able to make to date.

Since a fruitless session Jan. 17 with National Production Authority, there has developed competition among Washington claimant agencies wanting to represent water and sewage interests. Water and sewage works people dislike their present tie-in with Housing and Home Finance Agency, claimant only for domestic water supplies, not for domestic sewerage nor for industrial water or waste-disposal plants. And they want no part of any other existing agency, feeling their need vital enough to warrant formation of an independent setup such as the electric utilities Defense Electric Power Administration.

The direct approach to NPA has been swapped for grass roots action. AWWA members and those of the three other cooperating associations have been wiring their congressmen—apparently with result. Another session with NPA reportedly was set for Tuesday of this week. Faith in the ultimate outcome was evidenced in Orchard's statement that some 20 men would be needed to staff the proposed new claimant agency, at salaries $5,800 to near $9,500—suggestions of eligibles are sought.

• **Civil defense**—Waterworks men should handle waterworks problems in planning for civil defense. This was the position taken by J. S. Longwell, Piedmont (Calif.) consulting engineer, in reporting results of a survey made in February by AWWA Secretary Harry Jordan.

Among its findings: Of 48 state and 2 territorial sanitary engineers responding, all but 6 had been given civil defense assignments; 20 said they had waterworks men in CD organizations; 15 are without mutual-aid plans; 45 have had no orders for protective anti-sabotage measures.

• **To fluoridate or not to fluoridate**—A full-house session on fluoridation practices shed but little light on that subject, evidenced some little warmth. The scheduled presentation was mostly a rehash of information already published. The prolonged discussion that followed indicated that feelings on the subject of fluoridation vary widely, as does information.

A Missouri delegate, speaking for his delegation, expressed definite opposition to fluoridation of water supplies; others from elsewhere implied like feelings.

AWWA's general policy committee, however, reaffirmed its 1949 position that where public demand develops and local medical and dental societies approve, state and local health authorities and water suppliers may properly participate in fluoridation programs. It added that recommendations of fluoridation are the prerogative of health groups; after approval, it is up to the waterworks industry to follow through willingly and intelligently where proper controls are assured.

A. E. Berry assumed AWWA's presidency for 1951-52 (ENR Apr. 26, p. 29). Honorary memberships went to C. R. Cox of the New York State Health Department, S. B. Morris and S. S. Powell, Baltimore consultant. Wendell La Due won the Diven medal; Malcolm McIlroy, Cornell U. professor, the Goodell Prize, which is sponsored by ENGINEERING NEWS-RECORD.

Meeting registration totalled 1,906; next year's convention will be held in Kansas City, Mo., May 4-9.

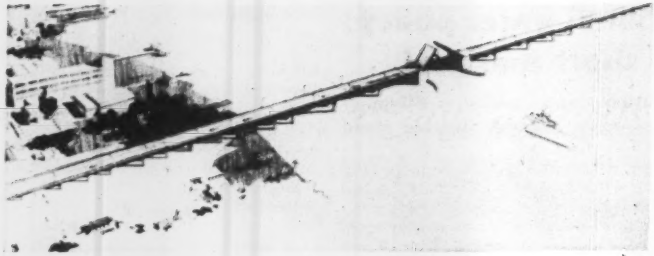
Gen. Lytle Brown dies; Engineers head, 1929-33

Maj. Gen. Lytle Brown, 78, former chief of the Army Corps of Engineers, died at Franklin, Tenn., May 3.

After graduation from West Point in 1898, General Brown was commissioned a second lieutenant of engineers and served on the Mexican border and in the Spanish American war in Cuba and the Philippines, where he became city engineer of Manila and engineering officer for Northern Luzon.

While commanding a battalion of Engineers at Fort Levenworth, Kan., in 1911, he made Douglas MacArthur, future General of the Army, his adjutant.

In 1917 he became colonel and the next year wartime brigadier. He later commanded many districts for the Engineers. In the second world war he served in important advisory capacities. He was chief of Engineers from 1929 to 1933.



Jacksonville awards contract for substructure of 3,667 bridge

A $1,179,668 contract for the substructure of the 3,667-ft Gilmore St. Bridge over the St. John's River in Jacksonville, Fla., has been awarded to Diamond Construction Co., Washington, D. C. The low bid was $181,000 below the estimate of the Florida State Road Department.

At the same time, the road bureau rejected for the second time a $5,208,000 combined bid on both the substructure and superstructure (ENR May 3, p. 17). Unit prices for the structural steel in this bid were considered excessive.

Located in downtown Jacksonville, the bridge will be part of the planned $50,000,000 Jacksonville Expressway. River traffic and adjoining terrain dictated a medium level structure with a movable span over the main channel. The Corps of Engineers called for a movable span with 174-ft horizontal clearance when open, and 37-ft clearance above mean sea level when closed.

The bridge will rest on two abutments, 23 land piers and 13 river piers, all of concrete. They will have concrete-encased steel piles.

• **Spans made continuous**—Designed for H20-S16 loading, the bridge will be deck-type, carrying two 26-ft roadways separated by a 4-ft wide mall. A series of three-span continuous-rolled beams, with 61-87-61-ft spans will form both ends of the structure. These will consist of 36-in., 194-lb wide-flange sections. Beams will be spaced 6 ft 8 in. apart under the 7-in. thick concrete pavement.

Adjoining the series of continuous beams will be three-span continuous plate-girder sections, with 130-154-130-ft spans. On each side of the movable span, the roadways will be supported on three-span continuous deck trusses, with 168-224-168 ft spans.

• **Movable span**—The movable span will be a 174-ft double-leaf bascule of the Chicago type, carrying a 5-in. steel-grating deck. Each leaf will consist of two trusses, spaced 58½ ft apart. Truss panels will be 15½ ft long. The trunnion girder will be a box section 66½ ft long, weighing 59 tons. Two 50 hp motors on each leaf will be capable of closing or opening the leaves in 90 seconds.

Details of the design were described at a meeting of the Florida Engineering Society, by Paul M. Huddleston, partner, Reynolds, Smith & Hills, Jacksonville, designers of the bridge.

Army OK's Hudson bridge for Empire State's thruway

The New York State Thruway Authority won another legal point last week in its battle for a suitable Hudson River crossing, a key link in the 535-mile super road now under construction, when the Army granted a permit to put a bridge across the wide Tappan Zee separating Nyack and Tarrytown.

The controversial bridge (ENR Feb. 1, p. 112) will be the only structure over the Hudson for a distance of 33 miles—in an important part of the state.

The roadway of the deck-truss structure will be 37 ft wide in each direction to accommodate safely six lanes of traffic. There will be a center mall, 10 ft wide, which also will be available for parking of disabled vehicles. The bridge will be 90 ft wide between railing and its grade will not exceed 3%—a standard Thruway specification.

A 1,000-ft tied-arch main span will clear the navigation channel 143 ft above the water at the center and 138 ft at the supports. Originally, a 5,800-ft earth-filled causeway was planned for the west shore link but Army engineers asked its elimination to forestall possible navigation hazards for small craft and to prevent dangerous ice jams.

Chamber scores federal water policy

The U. S. Chamber of Commerce lashed out at parts of the report of the President's Water Resources Policy Commission (ENR Dec. 21, 1950, p. 23), in recommendations adopted at its annual convention in Washington, D. C., last week.

The chamber charges that "conservation of water resources and water resource development have been and are being used as the initial step in the socialization of natural resources industries."

In a four-point policy recommendation for mobilization, the chamber urged:

1. That where water resource development should be undertaken to assist the defense effort, federal, state and local governments should confine themselves to necessary and proper governmental functions and should not undertake projects which private enterprise is able and willing to construct.

2. That the American free enterprise system continue and be fostered in the development of water resources, subject only to usual regulatory powers of government.

3. That all federal multi-purpose projects and project activities be re-examined to determine if they contribute immediately to national defense. Only those proposals which contribute immediately to defense should be approved. All others should be eliminated from present consideration in order to conserve funds for defense requirements.

4. That, so far as is possible and in aid of financing the federal defense effort, water resources development should be financed by private institutions, rather than by federal expenditures.

• **Power policies**—Attacking power marketing policies, the chamber proposes that power produced at federal dams be "disposed of to existing local generating, transmitting, and distributing systems" by one of three methods:

1. Private installation of the power facilities.

2. Leasing generating facilities to existing systems.

3. Selling the power at the busbar "without discrimination as to price and without discrimination or preference among applicants for power contracts."

The policy statement urged that "federal power projects, power cooperatives and municipal and state power districts should be subjected to taxes equivalent to all federal, state and local taxes on proprietary businesses."

Protective devices contain Miss. flood

Although spectacular, and posing critical problems at times, the recent Upper Mississippi River flood did not break through any of the major protective facilities that have been installed generally in accordance with standards recommended by the Mississippi River Commission back in 1927.

The greatest headwaters flood to roll down the river from the Minnesota basin since 1892. This year's flood kept from disastrous proportions and was passed into lower reaches where, in 1947, the river carried water in far greater volume and pressures than those experienced during the recent emergency.

Only two levees were breached by the high water. One was the Louisa No. 13 Levee just below the major levee protecting Muscatine, Iowa, and the other was the Carroll District Levee—both of which are provided to give nominal protection to abandoned agricultural areas that are now used mainly as wild life preserves.

As a precautionary measure, Lock and Dam No. 20, near Canton, Mo., were taken out of service and the motors removed to keep them out of high water.

• **Locks and dams open**—Of the 26 locks and dams between St. Paul, Minn., and Alton, Ill., only three were working with the dam gates closed. Two of these were hydroelectric projects. All others were operating wide open to avoid impeding the flow of the swollen waters.

Army engineers and officials of the various levee districts along the upper river took early precautionary measures. A total of 100,000 sand bags were distributed to critical points by the U. S. District Engineer at Rock Island, Ill. Under the Mississippi River Commission's standards the major levees are built to a height of three ft above the record stage.

In addition to meeting threats from the height of the water as it rolled along, engineers had to gage the ability of the levees to hold against continued high pressures for periods of three and four days at a stretch. Weak spots were watched and baffle walls and other protective devices placed.

• **Common Causes**—Levee failures are caused most commonly by overtopping, wave wash or scour on the riverside of the levee slope, seepage through the levee and sandboils that occur on the landside. Strong winds increase the incidence of failure by creating additional water turbulence.

A big problem in protected areas is the inability of storm and sanitary sewers to discharge properly at such a time. Many municipalities do not have sufficient pumping capacity.

The outstanding fact of the Upper Mississippi flood is that all of the major levees performed according to plan and that not a single person or any livestock had to be evacuated from behind these levees.

There were some evacuees from behind the two breached secondary levees and thousands of others had to be removed in those cases where they lived between the major levees and what is normally the river's edge.

California compiles data on state water conditions

The California departments of public health, natural resources, and public works have started to compile data on the condition of the state waters. The studies were requested by the state water pollution control board.

The survey will include sampling and analysis of the quality of water in 30 of the state's fresh water streams and lakes at a total of 60 different sampling stations. State agencies also will compile for the pollution board all data pertaining to this subject already in their files and records.

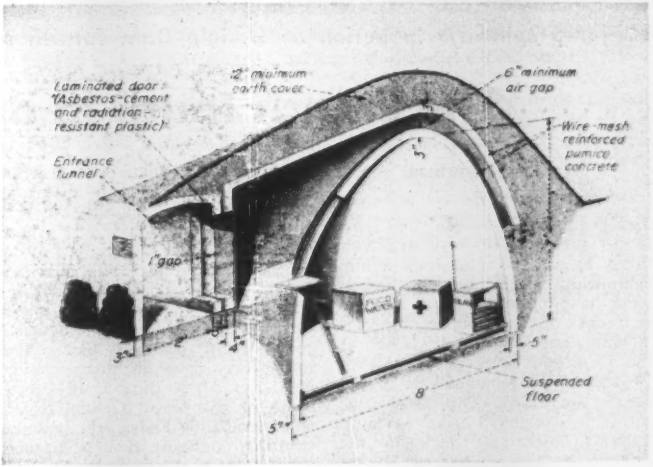
S. F. city fathers oppose Bay Area Council proposal

The controversy over the second San Francisco Bay crossing has been brought to a boil again—by city administrators who have come out against the proposed Bay Area Council "master plan" (ENR, Nov. 23, 1950, p.31).

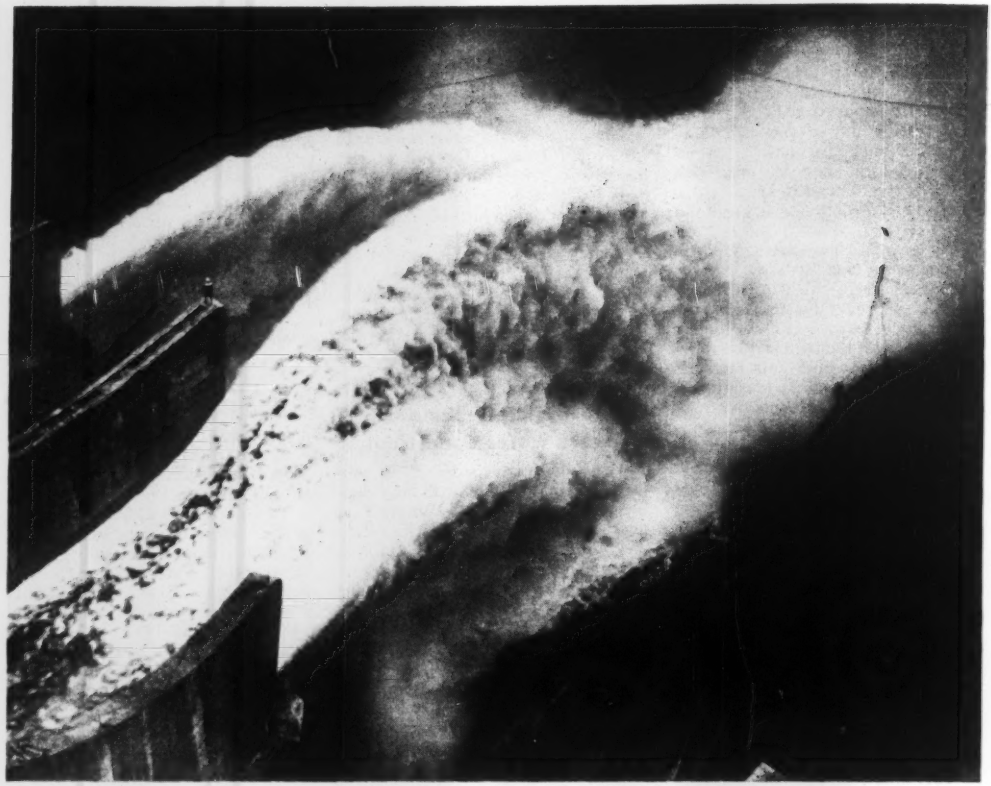
Submitting data prepared with the aid of City Engineer Ralph Wadsworth and Public Works Director Sherman Duckel, Chief Administrative Officer Thomas A. Brooks called the plan vague and impractical.

His report to the Board of Supervisors on the plan states that approval would be the "equivalent of abandoning its endorsement of the southern crossing." Earlier, the board had favored a crossing from the southern industrial area of San Francisco to Alameda, which had been proposed by a 1946 Joint Army-Navy Board (ENR, Feb. 13, 1947, p. 3).

The Bay Area Council plan suggests a bridge from the northern San Francisco financial and shipping area, crossing the existing bridge at its midpoint on Yerba Buena Island, and extending on to the Oakland mole vicinity, south of the terminus of the present bridge in the East Bay—thus forming an "X" with the existing bridge. Another bridge was proposed farther south than the location recommended by the Army-Navy.



PRECAST BOMB SHELTER—Two separate reinforced concrete shells and a cross-tunnel comprise a bomb shelter that will accommodate up to seven persons and emergency equipment, which is being offered for sale (erected) to the public for less than $1,000. Designed by Consulting Engineer Jacob Feld, it is expected to provide full protection against atomic bombs at distances greater than 2,500 ft from ground zero. Arthur DeBevoise, president of A. DeBevoise Co., Inc., Bayside, N. Y. contractor, has applied for patents and formed a company, Bomb Shelters, Inc., to precast, sell and erect these shelters, as well as larger ones. He also plans to license other contractors.



Ski-jump spillways in action at L'Aigle Dam furnish spectacular example of . . .

. . . . . The French touch in dams

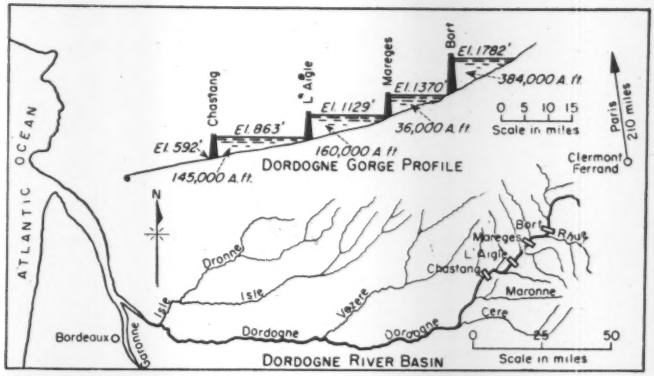
Waldo G. Bowman
Editor

THE FLAIR for the unusual and spectacular so frequently associated with things French has turned up in the dam field. Specifically, this French touch may be noted most strongly in a series of structures nearing completion along the upper reaches of the Dordogne River in the Massif Central, as the mountains of central France are called. On these dams will be encountered novel ski-jump spillways discharging high in the air from the roofs of the powerhouses; prestressed concrete girders; precast concrete forms that become the permanent faces of a dam; distribution of concrete by a combination monorail and bridge crane system; a semicircular powerhouse; and the use of steel cables to hold the spillways in place.

None of these features is, of course, the result of a whim or even of a calculated desire to create a striking visual effect or a novel structural form. Each results from careful but bold design to fit a dam to a given site and operating conditions. In general concept and in important details they are the product of Andre Coyne, France's top dam designer and one of Europe's best. And another key figure in their creation is Marcel Mary, director of equipment for the Massif Central region of Electricite de France, the national electricity authority that builds and operates the country's hydro projects.

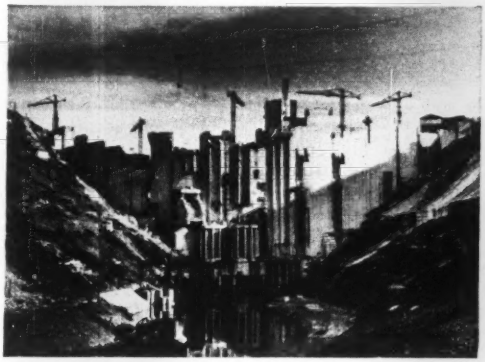
• **Power when you need it**—The Dordogne River basin is one of the most important in France from a hydro development standpoint. Its source is the highest peak in the Massif Central (El 6,190 ft), and its course, in a generally south and west direction, soon leads it into a series of gorges about 90 miles long, which end at an elevation of less than 600 ft. In these gorges and on the tributaries that empty into them are many good dam sites whose development promises the production of over 2 billion kwh of energy annually. The gorge dams alone, of which there are four, account for 1.7 billion kwh of this energy by utilizing 1,200 ft of head through four reservoirs that are practically continuous for a distance of 60 miles.

But it is not alone the size of the block of power that the Dordogne can turn out that makes it significant. To an even greater degree it is important because its power will be available in the winter months of maximum demand when the hydro plants in the high Alps and the Pyrennees are frozen up. Moreover, the Dordogne's water supply is so ample that it can assure a continuous power output—and no less than 50%

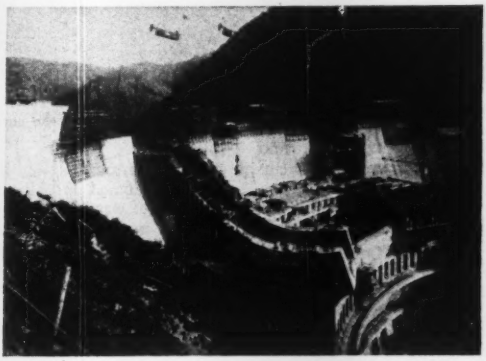


NEW DAMS ON THE DORDOGNE produce hydro power and handy precedents:

L'AIGLE: Ski-jump spillways.



BORT: Facing of precast units that double as forms.



CHASTANG: Spillway forms suspended from trusses.

of the maximum even in the driest year of record.

By the end of this year there will be ten power plants in operation in the upper reaches of the Dordogne, four of which will be the gorge plants that comprise the heart of the system, and are the principal subject of this article. Two of these dams—Bort-les-Orgues at the upper end and Chastang at the lower—are still under construction. The second project from the upper end, Mareges, was completed in 1935, while the third, L'Aigle, has been generating power only since 1947. Except for Mareges, which is a concrete arch, the dams are all of the arch-gravity type. They vary in height between 280 and 394 ft, making the Francis-type turbine with a vertical shaft the logical generating unit to be used.

Operation of the system contemplates using the three lower installations as run-of-river plants—since their reservoirs are relatively small—with Bort acting as a supply and regulating reservoir and also generating a sizeable chunk of power on its own. In detail, the four plants will have the following annual output in millions of kwh: Bort, 340; Mareges, 362; L'Aigle, 500; and Chastang, 515. Data on these new dams are given in the accompanying tabulation.

• **Ski-jump spillways**—The common denominator of the four dams—and the feature that figures most strongly in the French touch characterization—is a new type spillway, named—also with a French touch—the "saut de ski" or ski jump. Terminating high in the air and throwing its discharge a hundred or more feet downstream, the resemblance to a ski jump is readily apparent.

The most obvious advantage of the device is to remove the erosive impact of the water from the toe of the dam. This would be an advantage even though the erosion were merely moved to a less critical location in the river bed. Actually, the erosion is also much less because the jet of discharged water has its velocity reduced by air friction and at the same time is converted into finely divided particles—becoming a mixture of air and water—with only a moderate energy of impact.

After this advantage of the ski-jump spillway was accepted, others were recognized as possible and logical. Making the spillway serve as the roof of the powerhouse was one. Another that automatically followed was the grouping of the dam, spillway and powerhouse into a compact

DATA ON DORDOGNE DAMS

	Height (ft)	Length (ft)	Volume (cu yd)	Turbines (kva)
Bort	394	1,280	900,000	2 at 100,000 1 at 35,000
L. Aigle	312	951	320,000	4 at 50,000
Chastang	280	1,150	332,000	2 at 90,000

single unit. A saving in materials resulted and, most important, a saving in excavation, as compared to that required when spillways, and sometimes powerhouses, have to be carved out of the abutment rock. The principal disadvantage of the compact grouping is a slower construction tempo, caused by the necessity for simultaneous building of three types of structures in a confined working space.

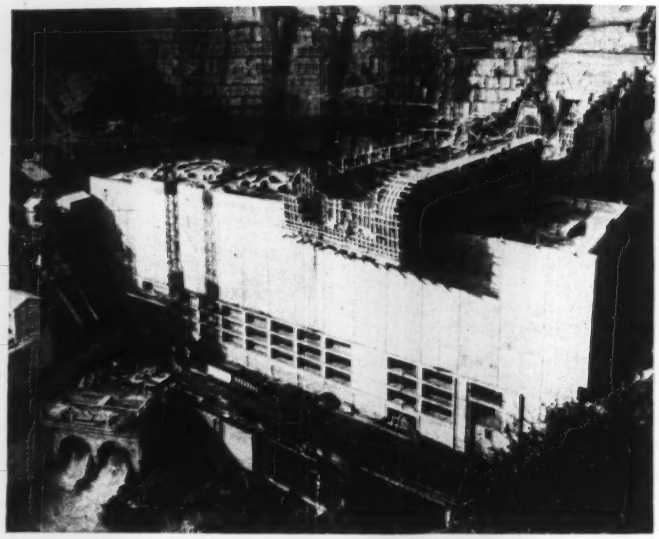
As with many innovations, the concept of the ski-jump spillway was suggested by an installation made without any idea of general utility in mind. It came about this way: On the Mareges Dam the spillway had to be placed at the right abutment. Here there was a large outcrop of hard rock just downstream and, since it would be costly to remove, Mr. Coyne decided to terminate the spillway on top of it, about 50 ft above the stream bed. The resulting reduction of erosion was so notable that when he came to design L'Aigle Dam in a narrow gorge, which required center-of-the dam spillways or else abutment tunnels, he chose the former and, recalling Mareges, terminated them on top of the powerhouse.

L'Aigle Dam, built by the contracting firm Les Entreprises Leon Ballot, thus had the first ski-jump spillways, although another dam designed at the same time by Mr. Coyne—St. Etienne-Cantales, on the Cere, a Dordogne tributary—has them too and was completed first (ENR Aug. 8, 1946, p. 182).

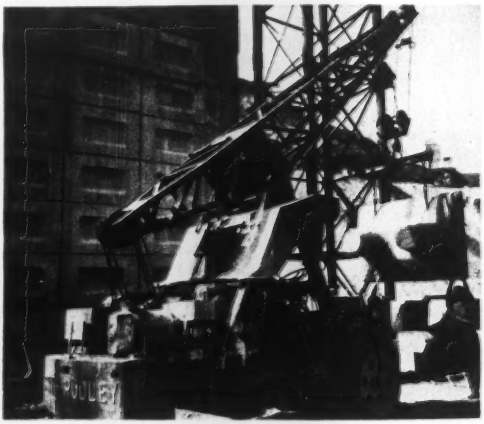
• **The L'Aigle spillways**—Each of the L'Aigle spillways—there are two disposed symmetrically about the dam centerline—is designed for a discharge of 70,000 cfs. And because of the narrowness of the gorge they are aligned and shaped to direct the jets of water into the center of the stream and away from the gorge walls. This is done by tilting the discharge ends of the slabs until their inside edges are 10 ft higher than the outside, at the same time giving the bucket something of a spoon shape. Such a surface causes the sheet of water flowing down the spillway to rotate or twist toward the inside, thus increasing the height and decreasing the width of the discharge jet. Such rotation also breaks the jet into particles and mixes it with air. The spillways project the water 165 ft downstream even when operating at only about half of full discharge.

Since the weight of the water on the spillway can reach 3,000 to 4,000 psf, a 3 ft thick slab had to be used across the powerhouse span, which at L'Aigle is 71 ft. And because a spillway of this kind joins two very rigid structures—the dam and the powerhouse—the possibility of high stresses from expansion and contraction must be taken into account.

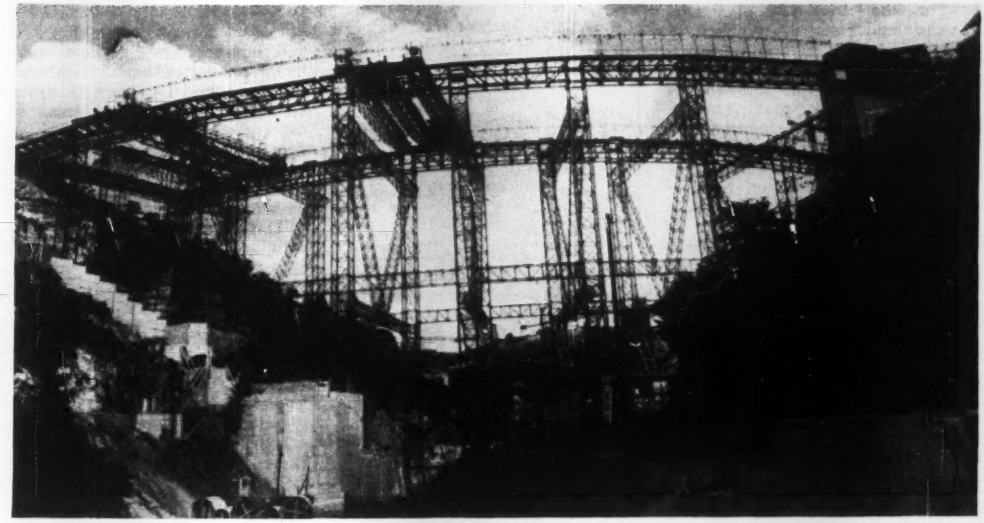
This was done at L'Aigle by cutting the spillway slab with a transverse joint several feet above the powerhouse roof. Then, to be sure that the lower end of the slab and



BORT POWERHOUSE with a plane front wall contrasts with a semicircular one at L'Aigle and the concave facade at Chastang.



PRECAST FORM UNITS at Bort are also the permanent faces of the dam. The 3½-ton units are erected by a small motor crane.



CONCRETE DISTRIBUTION SYSTEM at Bort operates on this steel frame-work. A monorail loop from mixing plant to dam follows the top trusses, which also support the two double bridge cranes that handle the buckets to points of discharge.

its powerhouse support was effectively joined to the dam, ten horizontal steel cables were placed in the roof slab under each spillway, and each cable tensioned to 150 tons after the concrete was poured. It is also envisioned that these cables will aid in resisting the torsion that may occur when only one of the spillways is in operation.

Similar prestressed concrete is used for the 6½ ft thick inside guide walls of the spillways, which act as girders where they pass over the powerhouse. Here both horizontal and vertical cables are employed, the latter reacting against the roof slab.

• **Novel powerhouses**—The narrow gorge at L'Aigle also fathered another innovation—the use of a semicircular powerhouse. The only way that the four 50,000-kva generating units could be arranged in the constricted space was in an arc pattern, and it was logical to have the powerhouse walls follow the same curve. The resulting unique architectural effect is heighted by a symmetrical arrangement of lines of horizontal and vertical windows.

The powerhouses of the other Dordogne ski-jump spillway dams—Bort and Chastang—also benefit from architectural attention to their windows. A horizontal motif is used at Bort where the wall is plane, while vertical windows are used in the slightly concave wall at Chastang.

At Chastang also, the concreting of the spillways over the powerhouse roof furnished a departure from the ordinary. To carry the forms without extending supporting framework to the powerhouse floor, the contractor, Societe Generale d'Entreprises, suspended them from a series of 12 steel falsework trusses. Spanning 80 ft between the powerhouse walls, they were 26 ft deep and equipped with a total of 104 slings carrying 15 load-distributing girders. The entire assembly weighed 630 tons, and was installed initially and then moved to the second spillway in pieces by the 25-ton materials cableway.

To cut down stripping time and difficulty, the bottom of the forms was composed of prefabricated concrete panels left in place. And to strike the falsework trusses speedily, they were set on hardwood blocks which could later be burned away with a blow torch.

• **Precast dam faces**—The dam still under construction at Bort-les-Orgues, even more than L'Aigle and Chastang, adds luster to French dam building accomplishments. Although its single ski-jump spillway follows the precedents previously set, several other aspects of the design and construction are quite extraordinary. One that immediately commands attention is the use by the contractor, Entreprises Metropolitaines et Coloniales, of a novel facing of precast units that serve also as the concrete forms.

A total of about 45,000 of these units is required. Weighing 3½ tons each, the units have face dimensions of 5x7 ft and are about 18 in. thick, with two projections (for anchorage) extending backward another 2 ft. It was decided that the units could not be any smaller or lighter and still have the necessary stability and strength under the pressure of a 5 ft depth of freshly poured concrete being vibrated into place.

Only one size unit is required, since the downstream dam face is made in a series of steps, instead of the more usual curve, with each step being an exact multiple of the unit height of 5 ft.

The units are manufactured in a building at the base of the concrete plant. Rigid steel molds are used. Set on a vibrating table they are filled by a bucket brought from the mixer by an overhead crane. Completed units are carried out onto the dam by a cableway, and then set up as the dam facing and forms by a small motor crane.

The same plant that turns out the face slabs also manufactures special prefabricated concrete units for all the projecting parts on the upstream face of the dam, such as trash racks, gate grooves and platforms. Using prefab units for these parts saved expensive and difficult forms and falsework on the dam. At the points where they are installed they take the place of the face units, and become an integral part of the concrete of the dam.

• **Job-made cement**—It is also noteworthy that 70% of the cement re-

quired for Bort Dam is manufactured on the job. A slag cement, it is wet-ground from slag shipped in from the Lorraine steel mills, an expedient adopted when it became clear that sufficiently ample and regular supplies of cement could not be counted on from commercial mills.

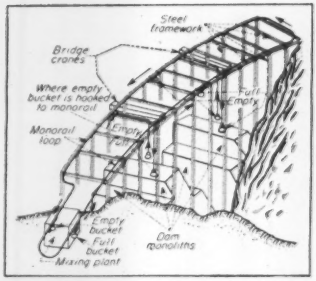
The dry slag is fed from storage silos into three ball-grinding kilns containing water equivalent to 30% of the weight of the charge. These kilns turn out 10 tons per hour of slag ground to the extreme fineness of 3,200 sq cm per gram. In the form of a paste it is then stored in vats equipped with agitators until it is pumped to the concrete mixers where it is combined with 30% of portland cement and the stone aggregates.

The resulting concrete has the advantage of having a low heat of hydration (80 cal per gram), appreciably reducing the footage of refrigerated water pipes that are to be used on Bort dam for the first time in France. The concrete is slow setting, but periodic tests prove its three-month-strength to be equal to that of a straight portland cement concrete of the same age.

The cement factory is an integral part of the concrete plant, the whole being housed in a single building set into the hillside. Slag and aggregates are brought in at the highest level by bucket tramways or teleferiques. Below this are the slag grinding kilns, and on the next step down the concrete mixers—6 of 4-cu yd capacity in two groups of three for the mass concrete, and 2 of 2-cu yd size to serve the pre-cast-units plant and supply the smaller batches required for reinforced concrete work. Below the mixer floor is the charging station for the buckets that are moved to the dam on the monorail system.

•Unique concrete distribution—The most spectacular and unusual feature of Bort dam is the installation of monorails and bridge cranes used to move 3-cu yd buckets of concrete from the mixing plant to the dam monoliths. It is believed to be both unprecedented and more nearly automatic than any concrete distribution system yet devised.

After the foundation concrete had been placed by cableway, a steel framework, (photo previous page), was erected over the dam. It consists of an upstream and a downstream line of square latticed columns, braced by both longitudinal and lateral struts and by lateral diagonals. Along the top of each line of columns, which are 154 ft apart, a heavy truss is placed to serve as the craneway. The top flanges of the top chords support the



SCHEMATIC DIAGRAM of Bort's monorail and bridge crane concrete distribution system.

rails for two double 9-ton bridge cranes which span between the column lines, and from these chords also the monorail system is suspended.

For concreting the lower 250 ft of the dam, where 90% of the concrete volume is concentrated, buckets hooked onto monorail carriages at the mixing plant move out along the inside edge of the downstream truss. At the desired location, they are picked off automatically by one of the bridges crane hooks, which then moves them transversely (upstream) to a point directly over the point of deposit, to which they are lowered and discharged.

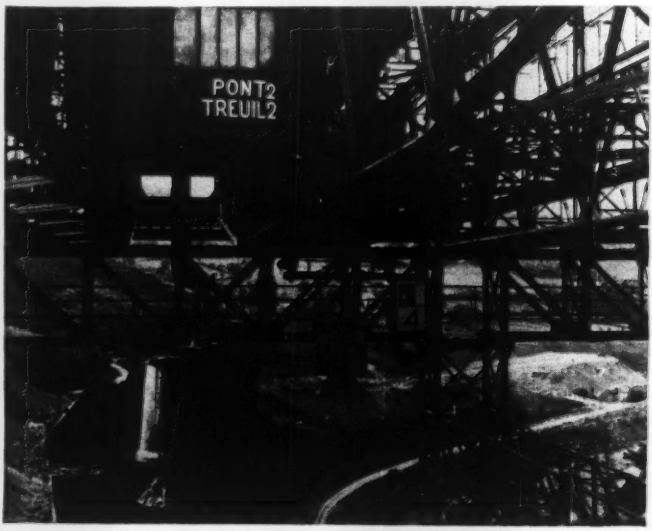
The bridge crane hook then raises the empty bucket, moves on across the span to the inside of the upstream truss where it hooks it on to the monorail carriage, which has continued around the circuit and is waiting for it.

Each monorail carriage has a cab and an operator who thus moves buckets round and round the continuous track—out on the downstream truss back on the upstream truss. The capacity of the system, which was designed to place 234 cu yd per hour, is limited only by the number of bridge cranes used, in this case two with four hooks.

This mode of concrete distribution was used until the concrete reached the elevation of the top transverse struts of the framework. At this point the upstream part of the framework (that is, that portion which had not been concreted into the dam) was removed, and the monorail circuit transferred to the downstream truss. Full buckets then came out on the inside as before, but returned along the outside of the same trusses.

As a part of this rearrangement, the bridge cranes were cut down to about half their original span, with their upstream tracks running on one of the completed steps of the dam face. They could thus continue to take buckets from the monorail and lower them to front-face areas not yet concreted to full height.

For concreting the 150-ft height of the dam above the elevation of the monorail, four hammerhead cranes were installed on one of the steps of the downstream face. Shuttle carriages were placed on the top struts of the framework to take the buckets from the monorail and move



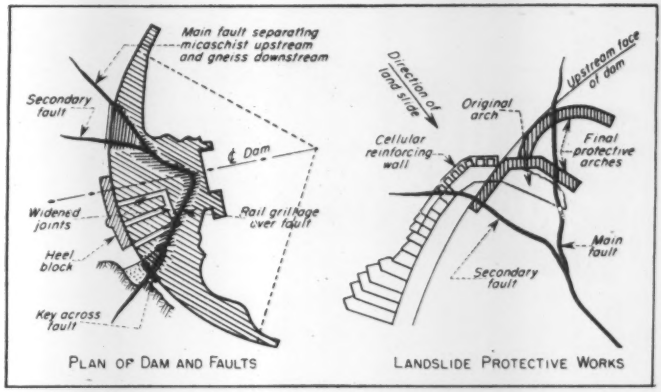
EMPTY BUCKETS moving back to Bort mixing plant. One in foreground on bridge crane hook will be attached to a carriage on the monorail loop, like the one in the background marked with a 4 on the operator's cab.

them within reach of the hooks of the hammerheads. Only about 75,000 cu yd of concrete had to be placed by this relatively slow method.

Bort dam concreting is now nearing the end so that this radically new method of distribution may be adjudged a success. It takes its place beside the ski-jump spillways as a French touch that deserves to command attention.

• **And poor foundations too**—No discussion of Bort would be complete without noting that this largest of French dams is founded on two kinds of foundation rock of widely different strengths—gneiss, 15,000 to 20,000 lb per sq ft. and micaschist, 5,000 lb per sq ft. Moreover, a crushed cleavage plane or fault between the two formations crosses the gorge directly under the dam. Between this main fault and a second one, which intersects it in the left abutment area, is a deposit of crushed micaschist that introduced other difficulties.

Both bold design and ingenious construction attended the placing of a major dam at this site, which was fixed by the location of the village of Bort directly below, and the absence of any gneiss at all farther upstream. These design decisions were taken: (1) to curve the dam so that the arch action could operate against the downstream gneiss; (2) to make the cross section such that there would be a minimum of 50 ft width of bearing on the gneiss at any elevation; (3) to extend upstream the base of the monoliths resting on the micaschist thus reducing the unit pressure to 3,000 lb per sq ft at the same time making these projections or heel-blocks high enough that they could serve as supports for the trash rack structures at the penstock intakes; (4) to leave wide joints (13 ft) between the two monoliths on the river bed so that they can complete any differential settlement before they are concreted in at the end of the job; and (5) to clean out and span the cleavage planes or faults with a grillage of railroad rails.



HOW POOR FOUNDATION WAS TREATED to support Bort Dam across a fault that divided strong gneiss from weak micaschist.

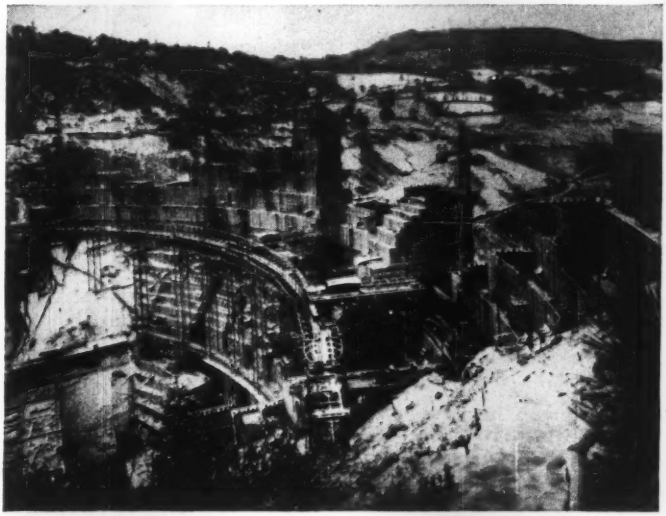
Construction ingenuity was required when slides in the micashist along the faults (which contained considerable slick clay) threatened to bring down most of the left abutment. When injection of nearly 400 tons of cement grout failed to arrest the movement, a concrete arch was built about half way up the hillside, abutting at one end on the gneiss and at the other on an outcrop of sound micaschist.

This arch was not founded very deeply and, a year later, another movement cracked it. Grout injection that required 600 additional tons of cement was followed by building a cellular wall behind the arch to reinforce it. A series of deep shafts were sunk to the sound micaschist, and concreted, after which the material between the shafts was excavated and replaced with concrete, resulting in a continuous web. This reinforcing wall was 10 ft thick, and permitted excavation in the stream bed to proceed.

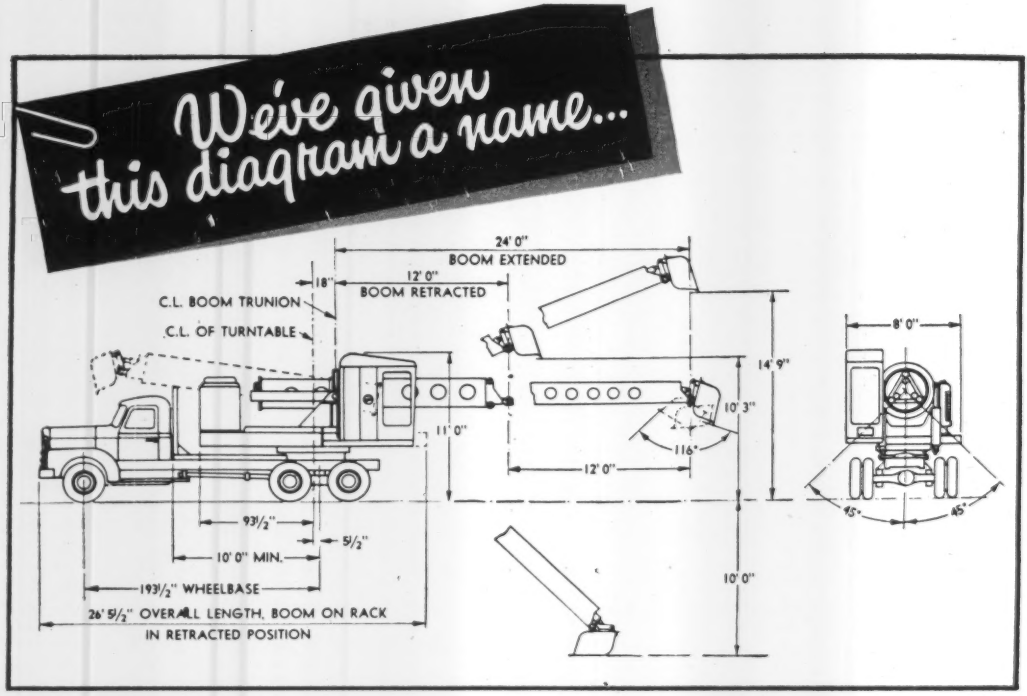
Toward the end of the foundation work, however, another set of protective works had to be built higher up on this same abutment in order that a bad area of crushed micaschist (in the angle between the main and secondary faults) could be removed and replaced with concrete. These works took the form of two arches built in trenches dug as deep as 120 ft into the micaschist but taking support on the gneiss outside the fault area.

Finally when all of the bad material had been removed down to the base of the dam, the faults were cleaned out, concreted where they were particularly wide and then spanned by the rail grillages.

It can thus be fairly said that Bort Dam, from bottom to top, is a worthy example of the French flair for using unusual dam building techniques. And since it is the key structure in the Dordogne power system it is apt to be remembered for many years.



FOR TOP OF DAM CONCRETING at Bort, hammerhead cranes handle buckets brought out by monorail whose loop is now carried only on the downstream trusses of the framework, since the upstream trusses and supports have been removed.



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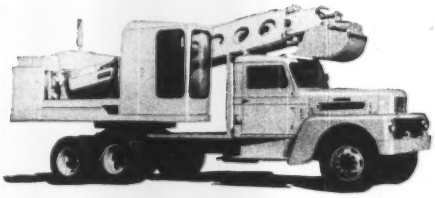

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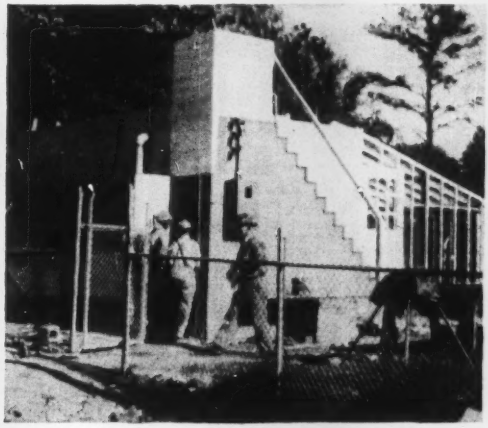


A very small town got a very cheap solution to its sewage-disposal problem . . .

Found: A sewage works the village can afford

George H. Ellis
Johnson & Williams, Consulting Engineers
Washington, D. C.

THE SMALL-TOWN sewage disposal problem has been licked for Mathews, Va.—at the startlingly low cost of $18,387.62.

Mathews, fishing and oystering town and county seat, centers on a peninsula that juts into Chesapeake Bay. It's a typical small town, with three square blocks of business section—courthouse, library, auto agencies, drug store, bank, and not much more.

But in this limited downtown area there had developed a sewage problem: overcrowded septic tanks, seepage from some, confusion as to which tank belonged to whom and concern that pollution might reach the offshore oyster beds.

First efforts of the town leaders to find a way out of their quandary brought forth a $100,000 plan. (It might as well have been $100 million; financing was obviously out of the question.) This plan was nothing but a scaled-down version of the typical municipal installation.

So, the president of the town bank and some of the business men formed —and invested their money in—the Mathews Corporation, and engaged Johnson and Williams, Washington, D. C., consulting engineers.

• **Needs found small**—A thorough survey proved that the problem did not extend beyond the business section; beyond its limits the community becomes immediately and distinctly rural. Further, since there were no basements needing service, deep sewers weren't needed; sub-frostline depth was sufficient.

In setting size of treatment plant, population was no index since the area is busy by day and nearly vacated at night. A count of business house personnel and probable customer traffic, together with total sanitary facilities, was considered. The result arrived at was that sewage would equal that from a population of 100 persons, assuming a rate of 100 gal per capita per 24-hr day—total flow: 10,000 gpd. Peak flows were figured at 300% of normal.

No known sewage treatment plant had been built to give complete treatment to so small a flow.

• **Choice of treatment**—Contact aeration was the treatment decided upon as offering the most economical installation. Treatment was designed for 95% BOD removal. (For more on contact aeration as applied to small installations see ENR Mar. 16, 1950, p38, Nov. 3, 1949, p 27.)

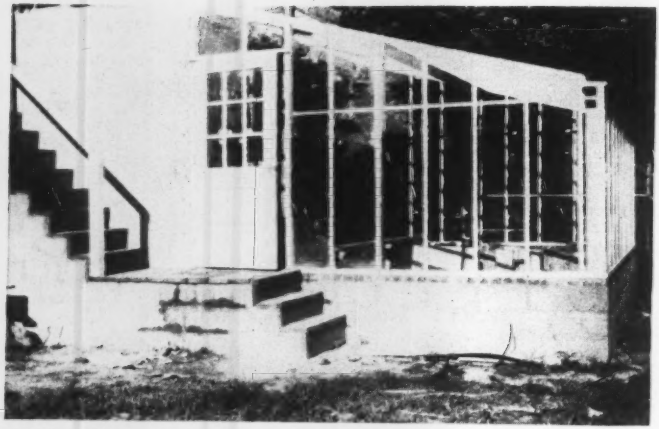
Simplicity of design and operation was stressed from the start; no allowance was made for aesthetic effect. The whole plant could have been undergound, leaving a small, neat blower house above grade; but the additional cost of excavation ruled against this. Other features and niceties frequently incorporated were barred because of cost. Final construction cost was a gratifying reward.

• **Not pretty, but cheap**—The plant, offering all the essentials of a complete treatment works, was designed as a reinforced concrete box 12½ ft square by 15 ft deep, with reinforced concrete partitions dividing the digester, settling tanks and aeration chambers. Tanks and chambers have hopper shaped bottoms, eliminating need for mechanical sludge collectors. A lean-to greenhouse was put against the rear of the plant to cover two 4 x 13¾-ft sludge drying beds and also to house the air blowers.

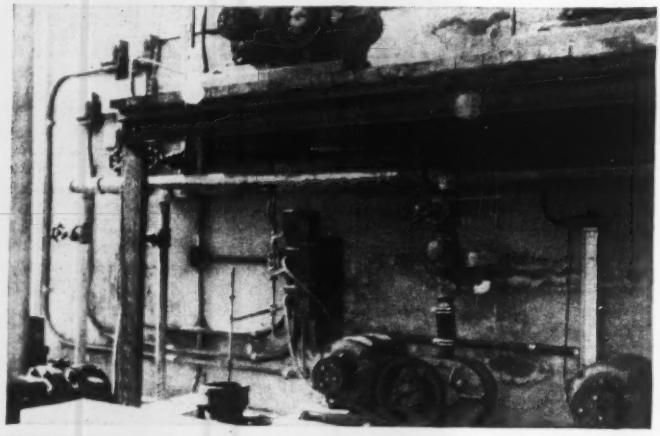
Other equipment, including a hypochlorinator, was put under stairs leading to tops of the tanks. A bar screen was built in the influent line in the yard. No grit removal was deemed necessary; a weir in the effluent was the only flow measurement means provided.

There is 2½-hr detention in the primary sedimentation chamber; 1½ hr in each of the two aerators; 1½ hr detention in both the intermediate and final sedimentation chambers. Sludge is digested before drying; effluent chlorination, storm or flood water overflows, and headwall with flap-gate were also included.

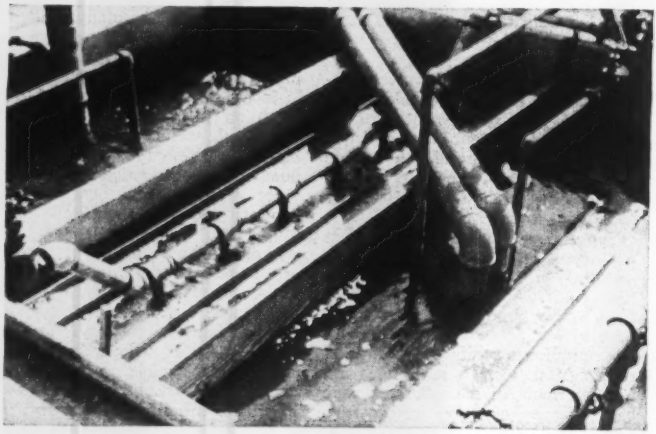
• **Aeration**—Air is fed in at the rate of 4 cu ft per gal of estimated sewage by two small rotary-type positive blowers. Use of two blowers affords the possibility of cutting down to 2 cu ft per gal at night when the sewage flow is negligible. A larger blower equal to the two small ones combined was installed as a standby. Air is diffused into the sewage through 24 12-in. long by 4-in. dia porous carborundum diffuser tubes arranged



GREENHOUSE for sludge drying was placed against the wall of the tank.



BLOWERS are in the greenhouse. Other automatic controls are under stairs.



FLOW is from left through primary settling, first-stage aeration and intermediate settling tanks shown here. Two 3-in. diagonal pipes are for sludge return to inlet end.

in pairs, 12 tubes in each aeration chamber.

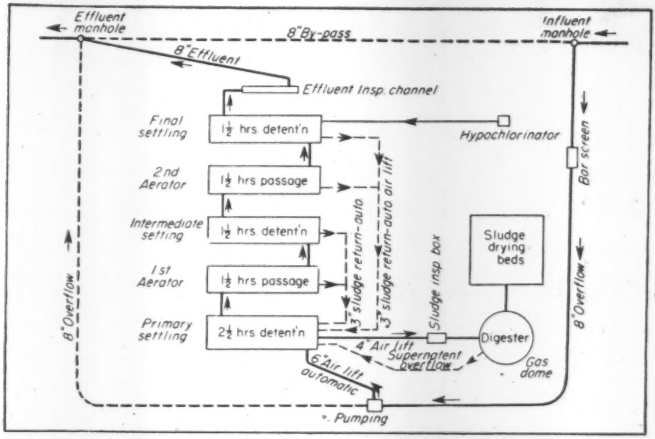
The porous tubes are 9 ft below the liquid surface, and the diffused air filters up through contact plates arranged vertically on 1½-in. centers. Contact plates are standard cement-asbestos building boards ¼-in. thick. Diffuser tubes hang in place at the ends of 1-in. pipes which supply the air to them. A good diffusion of air is evidenced by a quiet bubbling over the entire surface of the aeration chambers. Early difficulty in sealing the ends of the tubes to prevent leaking was overcome by use of soft rubber gaskets.

• **Double-duty air**—Since air service is an integral part of the plant, air-lift pumps were installed for all pumping operations. And since no pumping operation lasts as much as a minute, air to the diffusers can be interrupted during pumping without consequence to aeration. Air is introduced to the lift pumps at a point 8 ft below the sewage surface in the aeration tanks. At the opening of a valve, the air flows to the pumps against the 8-ft head instead of going on down to the diffusers which are at 9-ft depth.

Thus, pumps are operated with no additional cost. And, there being no moving parts about the pumps except the operating air valves, low maintenance cost is assured.

• **Flow and control**—Incoming sewage collects in a 2½-ft square wet well and is pumped by air lift—automatically operated by a float—to the top of the primary settling chamber. A 4-in. air lift, manually operated, pumps settled solids from this primary settling tank's hopper bottom to the top of the digester; digested sludge flows by gravity through a manually operated gate valve to the drying beds. Two 3-in. air lifts, automatically operated, pump settled solids from the aerators, intermediate and final settling tanks back to the inlet end of the primary settling chamber.

Air is controlled by a 1¼-in. solenoid valve actuated by electric impulse from a relay and a sequence timer. This permits setting up a schedule of automatic pumpings with timing adjusted to keep the hopper bottoms as clean as possible—far cleaner than could manual operations depending on a plant attendant. All of the regular plant operations can be scheduled and accomplished in consecutive order automatically day and night, Sundays and holidays. And time, duration, and sequence of all of the operations have a wide range of adjustments and variations, which



SIMPLE and SMALL—the Mathews plant is designed for automatic operation in every possible step. Attendant needs only to visit plant twice daily.

permit setting of operations to match exactly the flows anticipated.

A plant inspection each morning and evening by the attendant is enough to insure good operation.

Removal of sludge from the primary settling chamber into the digester was not made automatic because of the relatively small flows. It was not possible—with small flows and variations of large magnitude—to schedule automatic operation; over-pumping could too easily happen and would be detrimental. Under-pumping the primary settlement into the digester can be compensated by the plant attendant, but over-pumping would result in filling the digester with clarified sewage. This would displace the digester supernatent which in turn would flow into the primary settling tank with a strong septic and anaerobic action.

Over-pumping in the operations of desludging the aerators, intermediate and final settling tanks is not detrimental. Since this sludge is pumped into the primary settling tank for resettling, over-pumping simply means recirculation within the plant—and increased oxygenation.

• **Cost of building, operating**—The completed sewerage system—840 lf of 8-in. sewers, 450 lf of 4-in. laterals, manholes and appurtenances—plus the plant cost the grand total mentioned above, $18,387.62. The system is being operated at an average monthly cost of $75: $30 for electric power, $35 for labor, and $10 for materials. Total operating cost is 7.5¢ per capita per month.

These costs seem to indicate that the solution to small town sewerage problems may be near at hand, that small communities faced with orders to abate pollution are not without hope to meet the demands.

Contractors contributing to the success of the project were Mueller Construction Co. and Ferguson Construction Co., of Newport News, Va.

Notes on legal decisions

Summaries of decisions relating to construction work prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill Book Co.)

Cost-plus contracts

In negotiating a contract for the construction of an apartment house project, it was first contemplated that the contractor would be paid the cost of the work plus a fee. The written contract, as finally entered into, provided: "The owner shall pay the Contractor for the performance of the Contract, subject to additions and deductions provided herein on account of construction the sum of $325,882.00 cash. . . ." In the preliminary negotiations preceding the execution of the written contract, it was agreed that the contractor was to be paid a 5 percent "Builder's fee". No such provision was incorporated in the final written contract.

The contractor brought an action to recover the 5 percent fee. The court held that the contractor was not entitled to recover such fee, holding that the contract was clear and unambiguous. The printed form of contract that was used provided: "and in addition thereto, as a fee, $—— cash etc." This followed the part of the contract quoted in the previous paragraph and was stricken out of the contract. The court in commenting on this phase of the case stated that if the parties had contemplated paying the contractor a fee in addition to the amount of payment set forth in the contract, this part of the printed form of the contract would not have been stricken out, but instead, the parties would have inserted after the words" and in addition thereto, as a fee, $—— cash", the amount of the fee to be paid, that is 16,294.01, without the dollar mark—this sum representing five percent of the contract price.[1]

The court in its opinion further stated: "For some years cost-plus contracts have been frowned upon, as encouraging extravagance. They have been largely superseded by cost-plus-fixed-fee contracts. Perhaps the printed form of 'lump sum' contract, which provides for two sums, one called 'fee' was modeled after a cost-plus-fixed-fee contract with the lump sum separated into two sums. Strictly speaking, a 'fee' has no place in a 'lump sum' contract; the contractor works, not for a fee but for a 'profit', an excess of the lump sum over cost.'"

Contractors, engineers and architects, when using printed forms of contracts should make sure that the form of contract that they use is appropriate for the type of contract being entered into.

(1) Levin v Stratford Plaza, Inc. et al., 76 A. 2d 558 (Court of Appeals of Maryland, Nov. 3, 1950.)

Warranty of contract

A contractor installed a heating and air cooling system and warranted its proper performance for a certain period. During the period covered by the warranty, the systems were severely damaged solely as a result of high floods in the area in which the building was located.

The owner of the property brought an action against the contractor for the cost of putting the systems in working order, but was denied a recovery. The court held that though the warranty was unconditional, it was not reasonable to suppose that the parties, when they entered into the contract, contemplated that the contractor would be liable for damage to the systems resulting from floods.[1]

(1) Cook Paint & Varnish Co. v Lydick-Barmann Co., 230 S.W. 2d 581.

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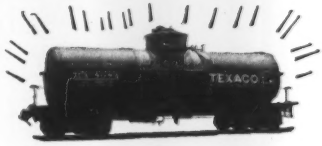

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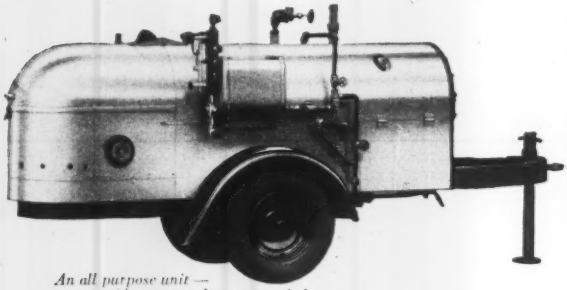

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STEAM BOILERS

Saving $75,000 on floor costs

A new departure in multistory steel building construction is the use of lightweight beams for floor joists. A pioneer in this use is the $4,500,000 eleven-story Marylander apartment house in Baltimore, Maryland.

Saving an estimated $75,000 under reinforced concrete and $45,000 under conventional steel design, the Marylander's design utilized so-called Junior Beams to obtain continuity over a system of steel girders at 12-ft spacing.

These lightweight beams are hot rolled from a single piece of homogeneous steel, and are uniform throughout. On this job, beams 6 in., 7 in. and 8 in. deep are used. Enclosed by a 2½-in. floor and a 1-in. ceiling they give an overall deck thickness of 9½ to 11½ in.

Lightweight-beam materials and erection costs are $8,000 per 36,360-sq ft floor. Each floor takes 43½ tons of the beams. These figures were supplied by the apartment's contractor, owner and designers.

• **Structural layout**—Floors are laid over tops of the supporting girders, and the girders are dropped down into the wall partitions. Continuous light-beam joists, up to 50 ft long in the floor construction, are supported by four girders over three continuous spans in some areas. Elsewhere beams are supported by three girders. Joist spacing is 1 ft 6 in. to 2 ft. Total steel weight, including 500 tons of the light beams, is 1,750 tons.

Continuity of joists reduced by 50% the number of pieces to be positioned during erection, compared to an arrangement calling for simply-supported joists of greater span.

Other advantages derive from the beams' use in mill stock lengths. The beam ends do not join, but rest side by side on support girders, permitting easy adjustment within fractional inches. Thus time-consuming shop detailing and shop fabrication were eliminated.

• **All-welded construction**—The American Bridge Co. erected the structural steel, using all-welded construction. Welding instead of riveting was chosen because the apartments are going up in a Baltimore residential district, where noise-reduction is desirable. Main-member connection was accomplished with the aid of a system of clips, developed by Baltimore consultant Van Rensselaer P. Saxe (ENR Sept. 8, 1949, p 25).

ALL-WELDED CONSTRUCTION began with main frame, connected by special clips. Continuous-beam joists, welded where they cross girders, support deck that is formed on wire-backed paper. Note adjustable steel bridging and conduit installation.

The building went up in three sections, worked on by three derricks. Bundles of the floor beams were spotted in each floor and positioned by hand.

Joists are welded to the tops of the girders with 2 in. welds along the flanges on both sides. The welds are designed to resist torsion. Rigid steel bridging is used for lateral stiffening.

• **Floor construction**—On top of the beams, wire-backed paper was laid, to form and reinforce a 2½-in. concrete slab. Electric conduit was laid over the beams and under the paper before the concrete was poured. Plumbing is arranged so that lateral pipes from risers run parallel with the joists and between them. Ceilings are of expanded metal lath spotwelded to the underside of the beam flanges and covered with 1 in. of vermiculite-gypsum plaster.

The Marylander apartment consists of 506 units, of which 336 are efficiency apartments, 98 are one-bedroom apartments, and 72 are two-bedroom units. Six elevators, two of which may be used for service as well as passengers, are being installed. Two-level garage areas in the basement and sub-basement will hold 280 automobiles.

The entire structure is reported to have unusual vibration-free rigidity. In addition it is highly fire resistant, impervious to termites, and vermin-proof. Completion for occupancy is expected by June, 1951.

The Marylander is the joint brainchild of Victor Frenkil, president of Baltimore Contractors, Inc., and J. H. Bodinger, president of The Marylander Apartments, Inc., builder. Hal A. Miller, Baltimore architect, has for associate on structural and mechanical design the firm of Candela & Resnick, New York. G. E. Carlstrand of Baltimore Contractors, working with Candela & Resnick, conceived and developed the idea of using the lightweight beams, which are manufactured by Jones and Laughlin Steel Corp., Pittsburgh, Pa.

Simple prestressing system for pedestrian bridge

PUTTING THE STRESS into California's first prestressed concrete bridge turned out to be very simple: The work was done by two men in what amounted to one day's working time.

Equipment was kept to a minimum, consisting mainly of a 25-ton jack mounted on a rough lumber frame with the necessary hydraulic pressure equipment. Jacking blocks and wedges were made of low-cost cast iron.

The bridge is a 110-ft span pedestrian bridge across the Arroyo Seco in Los Angeles (ENR Nov. 23, 1950, p 42). It consists of two 10-in. wide by 5-ft 8-in. deep girders with a 1-ft 8-in. wide, 9-in. thick top flange. These girders were precast at the site and moved into place by heavy cranes. The girders provide for an 8-ft walkway with a live load of 55 psf.

Each girder was prestressed with 125 wires, 0.25-in. dia. Prestress was applied by a method developed by the Prestressed Concrete Corp. of Kansas City, Mo. Walter Kaucher, Los Angeles, was general contractor, with the prestressing done as a subcontract. Low bid was $23,770 and this included a $5,000 item for prestressing.

• Economical procedure—The method used has the advantage that the prestressing blocks and wedges can be mass-produced of cast iron at a low cost. No expensive machining is necessary.

The wires were first cut to length and a button-type head was peened on each end by a machine developed by the prestressing subcontractor. This button rests against a ⅝-in. washer that in turn rests against the steel bearing plate or a stressing block, depending on the end of the girder involved. Tests indicated negligible creep in this fastening at 150% of design load.

The wires were inserted in 26-ga sheet metal casings to prevent bond with the concrete. The space around the wires was pressure grouted after stressing through 1-in. holes in the distribution plates.

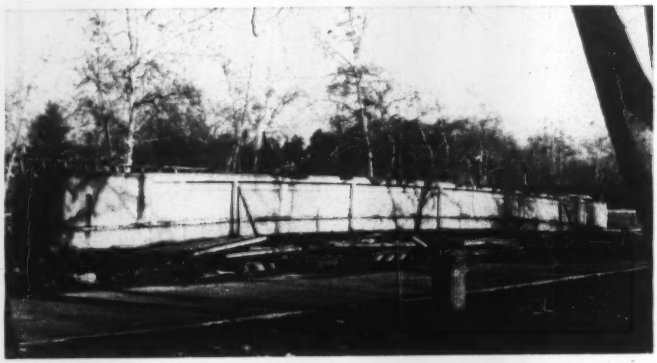
Five wires at a time were threaded through 1x4-in. by 3½-in. deep cast-iron stressing blocks. After the concrete had reached its full strength of 5,000 psi, the stressing was undertaken by pulling on one block at a time. Some minor stressing was administered only two or three days after the concrete was poured to eliminate shrinkage cracks.

The mechanical equipment included a 25-ton hydraulic jack with hydraulic pressure developed by an electric motor. The hydraulic system included a gage to measure pressure applied, a pressure receiver and a relief valve to assure maintenance of constant pressure. A rubber-tire-mounted motor-generator set provided electric power for the pressure system.

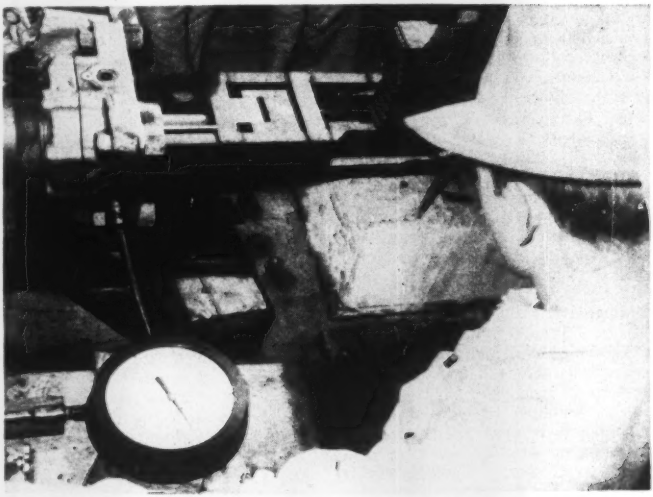
The high tensile strength wires (220,000-psi ultimate strength) were stressed 10% in excess of the final 117,000 psi and held at that stress for 2 min.

After that the stressing blocks were released to rest on the wedges. Allowing for plastic flow and shrinkage, design stress in the steel is estimated at 102,000 psi.

Pressure in the hydraulic system during stressing was 746 psi. This pressure working against the 42-sq in. piston of the hydraulic jack stressed the wires 10% in excess of 117,000 psi. A gage on the system was used for control (in preference to pulling



GIRDERS WERE PRECAST in a nearby park street. They were later lifted into place by heavy cranes.



PRESSURE GAGE shows 746 lb, which working against the 42-sq in. piston of the hydraulic jack, stressed a single cluster's five ¼-in. dia wires 10% in excess of the 117,000-psi loading. This pressure was maintained for 2 min, after which the pressure was released and the stressing blocks allowed to rest on inserted wedges.

the wires out a certain distance as indicated by computed strain).

While the wires were being stressed, U-shaped cast-iron wedges were inserted between the stressing block and the distribution plate. Thus, the stretch in the wires is maintained by bearing pressure. The developers claim this has an advantage over other systems that use a friction wedge system to hold the wires in place.

Stressing five wires at a time requires only moderately large equipment as compared with the 12-wire Freyssinet system. Yet it is much faster than the 2-wire Magnel system.

• **Some bugs ironed out**—As is the case in any new mechanical process there were some bugs in the prestressing system. These were ironed out in the course of the work.

Failure of the jaws mounted on the stressing jack was one of the difficulties encountered. The original jaws used to pull the stressing blocks were only ¾ in. deep and were rigidly mounted. On pulling the first block, the jack was apparently not fully centered so that most of the force was on one jaw. This caused the block to shear and when the full prestressing load was imposed on the other jaw, it also broke.

This difficulty was remedied by making the jaws 1½ in. deep and by mounting them on a series of three large diameter steel pins so the pull on each jaw would be automatically equalized.

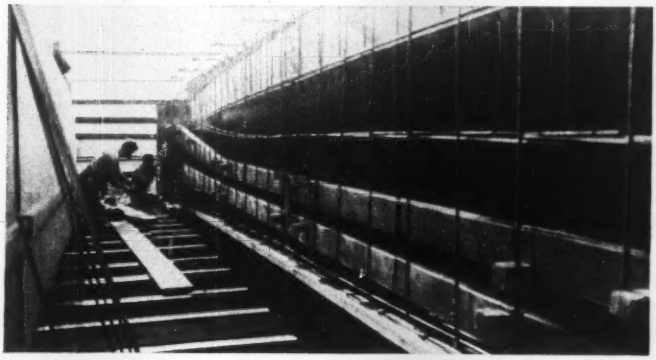
Another apparent flaw in the system is that all blocks did not pull out the same amount. The blocks in the middle of each cluster achieved their full load with a deformation about 1 in. less than the 5¼ in. required for the blocks on the exterior of a cluster.

Opinion is divided regarding the cause of this. It could be a matter of geometry. That is, since all wires were cut to the same length, the flaring of the wires at the girder ends might cause a difference in elongation.

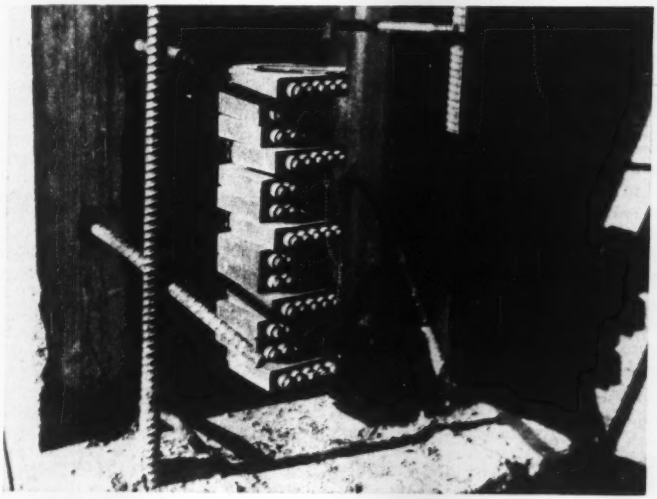
On the other hand, this might be explained by the soft steel spacers used inside the girder. These may have failed and in so doing gripped the wires in the middle of a cluster. This would have caused these wires to become fully stressed before full deformation was reached.

A safety factor is that the stressing force was measured as the wires were tensioned. Thus, the amount of stress in at least a portion of each five-wire group is definite, the developers claim.

Most other prestressing systems call for a specific deformation, but then they say, the stress in the wires cannot be accurately known.



METAL BOXES of 26-gage steel encased the two groups of prestressed wire to keep them free of concrete. Grout was later placed around the wires.



SOME WIRES were given a slight initial prestress as is shown here to minimize shrinkage cracks during concrete curing. Pencil on top of top block gives scale. After wires were prestressed and grout forced in around them, concrete was placed around the stressing block and wedge assembly.

• **Another difficulty**—Another minor failure developed when, on stressing one block, one of the wires broke. Close examination showed that this was due to a flaw in the wire. It is interesting to note that when the wire broke it shot some 60 ft out from the end of the girder. To protect bystanders, a 6x6 timber was lashed to the girder on the opposite end from where the prestressing was under way for the remainder of the tensioning.

• **Stress measured**—Since this is an experimental structure, seven Carlson strain gages were cast in each girder, three at mid-section and four at one of the quarter points. Readings were taken during various steps of the prestress work. These will be interpreted by members of the staff of the Institute of Transportation and Traffic Engineering at the University of California. It is hoped that analysis will help future prestress bridge design.

This structure is a project of the California Division of Highways under the direction of F. W. Panhorst, assistant state highway engineer in charge of bridge design and construction. Jack Sylvester was resident engineer on the work.

Prestressed Concrete Corp. was represented by T. J. Gut. This firm is established to sell wire, peening machines, washers and expert service. It hopes to encourage contractors all over the U. S. to use its patented prestressing system.

Portland, Ore., contractor reports:

Chas. T. Parker, of Parker-Schram Co., says: "On this 36" pipe line using Dresser Couplings, a foreman, crane operator, oiler and six-man crew were able to average 15 lengths per day, complete except for coating. This in spite of almost incessant heavy rains. Where ditch was available without obstruction, we were able to complete about five lengths per hour. We know of no better method of connecting lengths of pipe in a water line."

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BOOK REVIEWS

Ten years later

WATER QUALITY AND TREATMENT—Second Edition. 451 pp. A manual prepared by the American Water Works Association, 500 Fifth Ave., New York 18, N. Y. $5.

This second edition brings up to date a first edition published in 1940, which, in turn, replaced a manual produced another 15 years earlier. The manual evidences AWWA's constant endeavor to make available a complete guide to the latest in water treatment.

Preparation of the text was a committee function depending entirely upon voluntary services of some 30 individuals well qualified to write on the various phases of water purification.

Important new material included in this edition is to be found in the portions on disinfection and on fluoridation.

A new look at toll roads

TOLL ROADS AND THE PROBLEM OF HIGHWAY MODERNIZATION — By Wilfred Owen and Charles L. Dearing. 204 pp. Published by the Brookings Institution, 722 Jackson Place, Washington 25, D. C. $2.50.

This little book should be read by all who are interested in financing highway construction. The authors have been intimately associated with highway-finance developments for a long time. Their discussion of the controversial question of toll roads as an element of the highway problem is factual and dispassionate.

This discussion covers the whole field of providing the funds necessary to the building of an adequate system of highways. It points to the weaknesses in state and federal road-financing methods, which lead to a revival of toll roads. "Reappearance of the toll gate," they say, "is evidence that traditional methods of financing highways have proved inadequate to meet the needs of today's traffic."

The basic weaknesses of the present methods of financing are that the states tend to spread their funds on a regional basis rather than on the basis of need, and the formula under which federal aid is distributed bears no relation to the amount of money each state needs to modernize its part of the interstate system.

Because of the improbability of being able to make the radical change in state and federal road-financing methods that would be required by an adequate modernization program, the authors state that "toll financing appears to be the only ready solution for urgent highway needs." They add that such financing only should be applied to projects that show promise of being a financial success.

Pending a complete change in federal policy, the authors suggest "amendment to the federal-aid road act to allow charging direct tolls on highways constructed or reconstructed with the aid of federal funds." This is in line with proposals made by this journal last year in recommending that federal toll-road policy be restudied (ENR March 30, 1950, p. 26).

Surveying fundamentals

PLANE SURVEYING—By Frank R. Theroux and Lisle A. Smith. 338 pp. Pitman Publishing Corp., New York. $3.50.

The surveying teacher who wants his students to be distracted as little as possible by "handbook" information will find this book useful. Its 200-odd pages of text cover plane surveying procedures from line-measurement to simple curves and earthwork (plus land surveying and instrument adjustment). The remainder of the book is occupied by tables.

Details are devoted to the basic operations. Some topics, such as errors in linear measurements, are covered in bare outline, so that the ambitious teacher is left free to expand in his own way.

As implied above, this is a text for a college course in elementary surveying, not a reference manual for the practicing surveyor. Perhaps it should receive special consideration for use in junior-college courses and in courses for non-civil engineers.

Conference product

ENGINEERING HYDRAULICS—Edited by Hunter Rouse. 1,039 pp. John Wiley & Sons, New York; Chapman & Hall, London. $15.

It is not just by chance that the proceedings of the Fourth Hydraulic Conference, Iowa Institute of Hydraulic Research, turn out to be this comprehensive reference work in the applied science of hydraulics. Organizers of the June, 1949, conference planned it that way.

Institute staff members recognized the need for a thorough presentation of principles of hydraulic design and set as goal of their fourth triennial session the production of just that. They decided upon 13 inter-related subjects, which ultimately were to become the subjects for chapters in the book, and then invited an authority in each subject to write a chapter. At the 1949 conference, preprints of the chapters were critically discussed by other hydraulic specialists and commented on by those in attendance.

This concerted review of the book, chapter by chapter, was largely coordinated by Boris A. Bakhmeteff, and it is to him the volume is dedicated.

The finished product has in it the best thinking of over 400 engineers who attended the conference, of the official reviewers and of 13 well-chosen authorities on the subjects embraced. There is an engaging chapter on models entitled "Hydraulic Similitude" by J. E. Warnock, who passed away before publication of the work. G. R. Williams' chapter on hydrology is a good, simple statement of the principles. A discussion of floods by B. R. Gilcrest gives the latest in devices for forecasting and routing.

Other subjects include: flow and its measurement, in the ground, in pipes and in channels; wave motion; sedimentation; hydraulic machinery. Other authors: J. W. Howe, C. E. Jacob, V. L. Streeter, J. S. McNown, A. T. Ippen, C. J. Posey, G. H. Keulegan, C. B. Brown, J. W. Daily and Hunter Rouse. To the last named, as editor, goes credit for organization and correlation of the joint effort.

Air mapping data revised

ENGINEERING SURVEYS, ELEMENTARY AND APPLIED—Second Edition. By Harry Rubey, George Edward Lommel, and Marion Wesley Todd. 893 pp. Macmillan Co., New York. $5.00.

ADVANCED SURVEYING—SECOND EDITION, By W. H. Rayner. 369 pp. D. Van Nostrand Co., New York. $4.50.

Those who are familiar with "Engineering Surveys," the excellent manual of elementary and advanced surveying practices by Rubey, Lommel and Todd, will find the 1950 revised edition unchanged in most respects. One major new feature is noteworthy. It is the chapter on photogrammetry, which has been enlarged, revised and brought up to date by H. O. Sharp of Rensselaer Polytechnic Institute.

In 112 pages Professor Sharp describes the tools of aerial map making, the mathematical, optical and stereoscopic principles, the procedures, and the methods of providing ground control.

Altogether the photogrammetry chapter looks like a manageable unit for inclusion in an advanced surveying course. It also would be useful to the older surveyor who feels a need for greater familiarity with this dynamic branch of surveying.

Another revision appears in the

chapter on land surveys. Changes are based on the 1947 revision of the Manual of Instructions for the Survey of Public Lands in the United States, issued by the U. S. Bureau of Land Management.

Photogrammetry also is brought up to date in Professor Rayner's book. Here the emphasis is on analytical principles of making maps from photographs already obtained. Picture-getting and making, as well as the mechanical tools (camera, plotters, etc.), get secondary attention, it being the author's intention to concentrate on theory and applications that can be taught with inexpensive equipment.

An outstanding feature of this edition, carried over from the first, is Professor Rayner's remarkably lucid discussion of errors. He leads off with a chapter on the subject, then plays up the importance of errors wherever appropriate in subsequent chapters. The emphasis on the nature of errors is especially useful in an understanding of his material on adjustments of survey data.

A sanitation primer

THE PRACTICE OF SANITATION—By Edward S. Hopkins and Francis B. Elder. 423 pp. The Williams & Wilkins Company, Baltimore 2, Md. $7.50.

A readable reference on all phases of environmental sanitation for use of doctors, nurses and students of sanitary engineering and public health was the aim of the authors in preparing this elementary text. It might also be a handy reference for the engineer not directly involved or fully informed on sanitary engineering matters.

Viewing each subject chiefly from the public health aspect, the authors discuss in detail without technology: water supply, sewage and refuse disposal, water and air pollution, swimming pool and food sanitation, rodent control and the administration of sanitation programs.

Central Valley project

THE CENTRAL VALLEY PROJECT AND RELATED PROBLEMS—148 pp., paperbound, Oct. 1950 issue of California Law Review, Boalt Hall of Law, Berkeley 4, Calif., $1.50.

Here is a collection of six essays summarizing problems, legal and otherwise, that have developed in connection with California's Central Valley project. Because of the complexity of such questions as the 160-acre limitation, water rights, and federal vs. private power development, it is not possible to summarize these articles in a few short paragraphs.

These essays present relatively impartial analyses of the problems—presenting them in such a way that the reader can draw his own conclusions as to the right and wrong of each. This is a service to those interested in water resource development and its complexities.

Authors of the essays are: S. T. Harding, consulting civil engineer, Berkeley; Edward F. Treadwell, member of the San Francisco Bar; Leland O. Graham, regional counsel, Bureau of Reclamation, Sacramento; William B. Kuder, associate attorney, Pacific Gas and Electric Co.; Edison Abel, California Farm Bureau Federation, and Arthur A. Maass, assistant professor of government, Harvard University.

New Engineering Books

ROUTE SURVEYS—By Harry Rubey. Revised edition. 282 pp. Macmillan Co., New York 11. $5.25.

THE KENTUCKY PROJECT—Technical Report No. 13, Tennessee Valley Authority. 877 pp. Superintendent of Documents, Washington 25, D. C. $3.25.

STRENGTH OF MATERIALS—By Ferdinand L. Singer. 469 pp. Harper & Bros., New York 16. $5.00.

CITIES AND TOWNS OF ILLINOIS—By Karl B. Lohmann. 110 pp. University of Illinois Press, Urbana, Ill. $2.50.

CONCRETE PIPE HANDBOOK—373 pp. American Concrete Pipe Assoc., 228 No. La Salle St., Chicago 1. $4.00.

HIGHWAY ENGINEERING—By L. J. Ritter, Jr. and R. J. Paquette. 721 pp. The Ronald Press Co., 15 E. 26th St., New York 10. $6.50.

PLANT LAYOUT—PLANNING AND PRACTICE—By Randolph W. Mallick and Armand T. Gaudreau. 391 pp. John Wiley & Sons, New York 16; Chapman & Hall, London. $7.50.

MCMICHAEL'S APPRAISING MANUAL—By Stanley L. McMichael. Fourth edition. 731 pp. Prentice-Hall, New York. $5.35.

THE DESIGN OF PRISMATIC STRUCTURES—By A. J. Ashdown. 65 pp. Concrete Publications Ltd., 14 Dartmouth St., London, S.W. 1, Eng. $1.85.

INDUSTRIAL HEALTH AND MEDICAL PROGRAMS—Public Health Service Publication No. 15. 397 pp. Superintendent of Documents, Washington 25, D. C. $1.00.

DIMENSIONAL ANALYSIS AND THEORY OF MODELS—By Henry L. Langhaar. 166 pp—John Wiley & Sons, New York 16; Chapman & Hall, London. $4.00.

FLUID MECHANICS—By Victor L. Streeter. 366 pp. McGraw-Hill Book Co.; New York 18, Toronto, London. $5.00.

MANUAL OF GEODETIC TRIANGULATION—By F. R. Gossett. Special publication No. 247. 344 pp. Superintendent of Documents, Washington 25, D. C. $1.50.

TOLL ROADS AND THE PROBLEM OF HIGHWAY MODERNIZATION — By Wilfred Owen & Charles L. Dearing. 204 pp. The Brookings Institution, 722 Jackson Place, N.W. Washington 6, D. C. $2.50.

MANUAL FOR WATER WORKS OPERATORS Prepared by Texas Water Works & Sewerage Short School; Texas State Department of Health, Austin, Texas.

MANUAL OF BRITISH WATER SUPPLY PRACTICE—Compiled by The Institution of Water Engineers. 910 pp. W. Heffer & Sons Ltd., Cambridge, England, 50s. Obtainable through Stechart-Hafner Inc., 31 East 10th St., New York 10, N. Y.

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Reports and Pamphlets

METHOD TO INCREASE RIGIDITY IN TORSION OF DOUBLE-FLANGED BEAMS—Bulletin No. 8. Division of Building Statics and Structural Engineering, Royal Institute of Technology, Stockholm, Sweden.

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RECOMMENDATIONS — EARTHQUAKE RESISTANT DESIGN OF BUILDINGS, STRUCTURES AND TANK TOWERS—No charge but distribution limited to those directly engaged in design of structures. Pacific Fire Rating Bureau, 465 California St., San Francisco 4, Calif.

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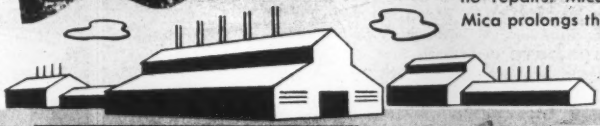

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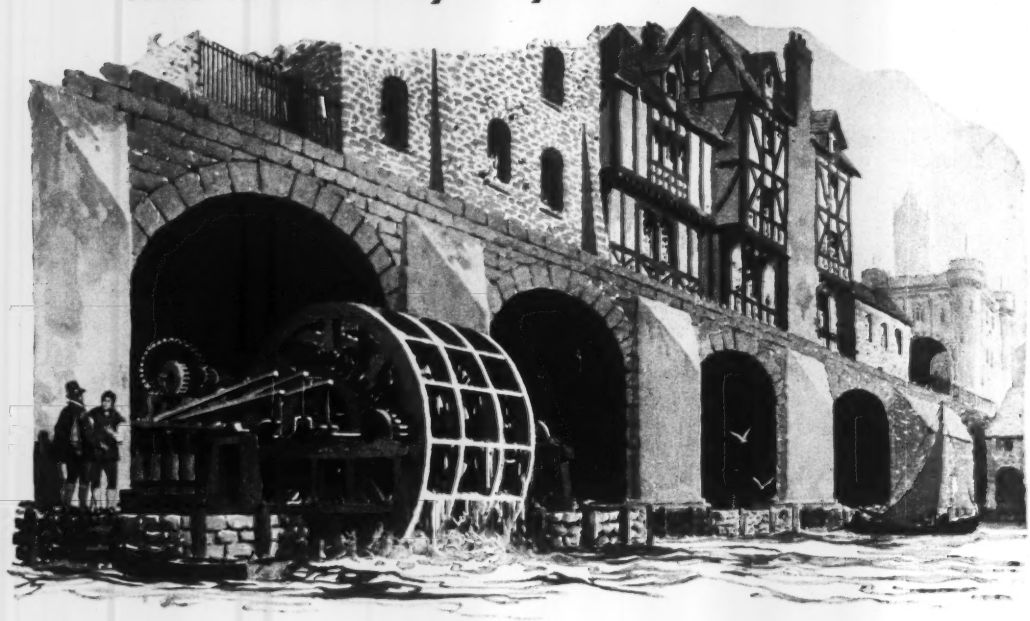

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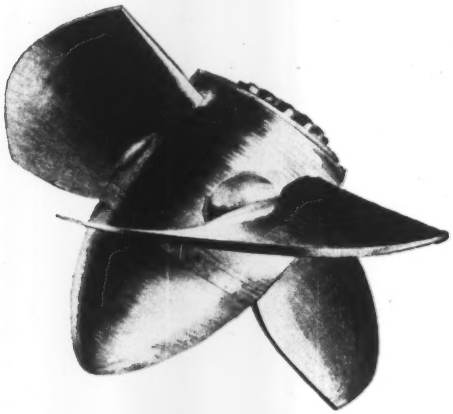

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READER COMMENT

Full speed ahead

Sir: How come, gentlemen, your editorial in the March 22 issue, entitled "Reconsider Pollution Abatement?" Who besides you says that pre-emergency issued orders should be immediately reconsidered? Not the National Production Authority, so far as I know, or the Public Health Service, or the AGC.

And can you assure our commission, our cities and industries that "considerable savings" will accompany such delays? Your past construction cost indices, WW I to now, don't back up that statement.

Still suffering from pollution as we are in Michigan, as the result of WW II where 27% of all war material was turned out and new populations cared for and already more defense contracts daily, we'd be sunk if the commission followed your advice. Better to go down working for pollution control where it's needed now than to just throw up the sponge.

ENGINEERING NEWS-RECORD, for once in my life, I'm ashamed of you! A quitter you are, in time of stress, unless you have something to lay on the line.

MILTON P. ADAMS
Executive Secretary
Water Resources Commission
State of Michigan
Lansing, Mich.

Discretion might still be the better part of valor, as the editorial suggested in urging that projects be carefully measured as to their necessity and contribution to the defense effort.—EDITOR.

Sir: I was shocked to read Engineering News-Record's editorial on pollution abatement in the March 22 issue. This certainly is not the kind of leadership which I have always associated with ENR. One expects some hysteria over the problems of civil defense and production for mobilization but hardly from ENR.

Water is a limited natural resource of vital importance for the defense effort in the present and future productive capacity of America. It must be used intelligently without abuse or waste. Over the past fifty years, pollution has made heavy inroads on natural water resources and we are now just beginning to recognize and face up to our responsibilities with respect to pollution abatement. It would, indeed, be a major national disaster if we were to follow the short-sighted policy proposed in ENR.

As General Marshall has reiterated, whether the war be hot or cold, we are definitely in for a long pull. In the next 10 to 20 years, we face the absolute necessity of substantial increases in our productive capacity, not only for mobilization but also for the normal increases of civilian needs. The distinction in the long pull between what is designated as civilian need from that designated for military purposes is rather academic. We need increased production capacity all along the line and this means a tremendous increase in demand for industrial water supply. Along with the increased production must go a continuing effort toward abatement of pollution and rational utilization of water resources within the limitations of the national purification capacities of our streams.

I sincerely hope that Engineering News-Record will reconsider its editorial of March 22 and present the true situation for the long pull. Unfortunately, there are always some municipalities and industries who are looking for an excuse for delay, but I think you will find on closer analysis that your editorial is not in line with the better thinking among responsible governmental and industrial minds.

C. J. VELZ
Professor and Chairman
Dept. of Public Health Statistics
University of Michigan
Ann Arbor, Mich.

Deep bridge piers

Sir: In reading your article (ENR March 29, p. 98), under bridges, regarding the Geo. P. Coleman Memorial Bridge over York River, you state—"Depth of caissons in water—as much as 80 feet—was exceeded only by the depth of one of the piers at San Francisco. It was sunk through not only 80 feet of water but also 70 feet further into the river bottom."

In addition to the San Francisco-Oakland Bay Bridge pier it may be noted that Pier 5 of the Tacoma Narrows Bridge with a caisson 64′ 6″ x 117′ 6″ base dimension was landed on the bottom in 120 feet of water with a maximum tidal velocity of 8 mph. Pier 4 of the same dimension was landed in approximately 118 feet of water with a maximum tidal velocity of approximately 6 mph.

CHAS. E. ANDREW
Chief Consulting Engineer
Washington Toll Bridge Authority
Olympia, Wash.

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MUNICIPAL AFFAIRS

MAGNIFICENT BACKGROUND—Set in an area of superb mountains are the city of Vancouver and its harbor which is the largest and most used on Canada's Pacific coast.—(Photo Survey Corp. Ltd.)

Vancouver, Canada's 3d largest city

Vancouver, B.C., on Canada's west coast, probably has seen greater municipal growth than any other Canadian city in the postwar years. There has been a major trek from all parts of Canada to Vancouver since 1945, and this has resulted in the city's growth from fourth largest Canadian city to third position with close to 600,000 population in its metropolitan area. This growth is reflected in municipal planning and building permits.

Vancouver last year spent $8,429,000 on capital expenses, the largest amount ever spent in a single year. This year the city has an even larger list of improvements planned, including a new bridge to cost more than $6,000,000 for the structure alone, a new dam for the water board to cost about $6,000,000, with possibly another $5,000,000 to be spent on new civic buildings, including a police station, and an auditorium and civic center. The new Granville Street bridge is expected to call for another $12,000,000 to be spent on approaches and land purchases. The Capilano Dam project is expected to cost about $8,000,000 to complete. Contractors' bids for the structure are about $6,000,000.

Vancouver is a major shipping center. Surrounded by snowcapped mountains, its harbor is secluded but visible from most parts of the city. Vancouver is the port of almost all Canadian trans-Pacific trade, the center of a flourishing lumbering industry, and has in the postwar years become an important small industries area. About half of the population of the entire province of British Columbia, with

(*Continued on page 51*)

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Although Kaylo Laminated Panels are lightweight (only 6¼ pounds per square foot), they have exceptional strength, dimensional stability and resistance to impact. They are rotproof, vermin-proof and resist water damage. Kaylo Laminated Panels are only 2 inches thick yet they give better heat insulating value than 16 inches of solid concrete.

Kaylo Laminated Panels may be attached to either steel or wood framing. They can be sawed, nailed or drilled with standard tools. Kaylo Laminated Panels provide better walls, reduced building load, increased floor space and easier erection for nearly every type of building.

WEIGHT AND INSULATING VALUES COMPARED WITH OTHER WALLS

	U-FACTOR (Btu sq ft hr. F.)	WEIGHT (lb. sq ft.)
2" KAYLO LAMINATED PANELS WITH CEMENT ASBESTOS FACING	.30	6¼
8" SOLID BRICK	.50	84
8" HOLLOW CINDER BLOCK	.42	30

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Standard school plan adopted by Columbus

The Board of Education of Columbus, Ohio, will use a standard plan for the city's new elementary schools. It is expected to save much time in getting new work started.

The one-story plan worked out by Edward Kromer, school architect and structural engineer, calls for a minimum use of defense priority materials.

The basic structure is a foreshortened T-shape, with classrooms extending three ways from a central corridor and lobby, flanked on one side by a library and teachers' room, and on the other by the principal's office and the health room. At one end of the building at the front will be a multi-purpose room for lunches, meetings, audio-visual work, assemblies, etc.

General design is such that classrooms may be added or taken away as enrollment needs dictate. First of the schools to be built under this master plan will be the Oakland Park School for which bids will be opened June 1.

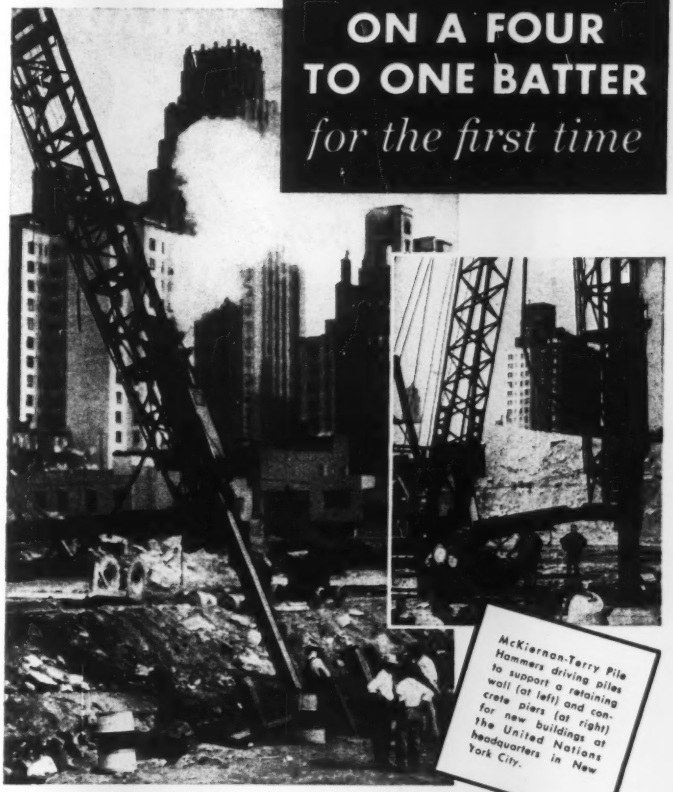
Water supply in the news

More fluoridation—The San Francisco Board of Supervisors has approved an experimental program to treat the water used by almost half the population of the city. The plan calls for installing about $30,000 worth of machinery for fluoridation of water of one reservoir. The health department has prescribed one part sodium

(Continued on page 52)

Driving Long Piles

ON A FOUR TO ONE BATTER *for the first time*



McKiernan-Terry Pile Hammers driving piles to support a retaining wall (at left) and concrete piers (at right) for new buildings at the United Nations headquarters in New York City.

Steel H-piles were driven to bedrock on an unprecedented 4 to 1 batter by the Walsh Construction Company on this United Nations project. Naturally the contractor chose a powerful McKiernan-Terry Pile Hammer for this tough job. • Despite the extremely flat batter, a McKiernan-Terry Single-Acting S-5 Hammer speedily and satisfactorily drove piles up to 108 feet in length. The hammer overcame such obstacles as boulders, rock, timber cribbing, old wharves and even sunken wooden ships on this filled-in river strip. In addition, a McKiernan-Terry Single-Acting S-8 Hammer and the S-5 were used to drive approximately 1 vertical steel piles. • This is more proof that dependable McKiernan-Terry equipment takes even the difficult jobs "in stride". Write for bulletin giving full details.

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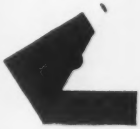

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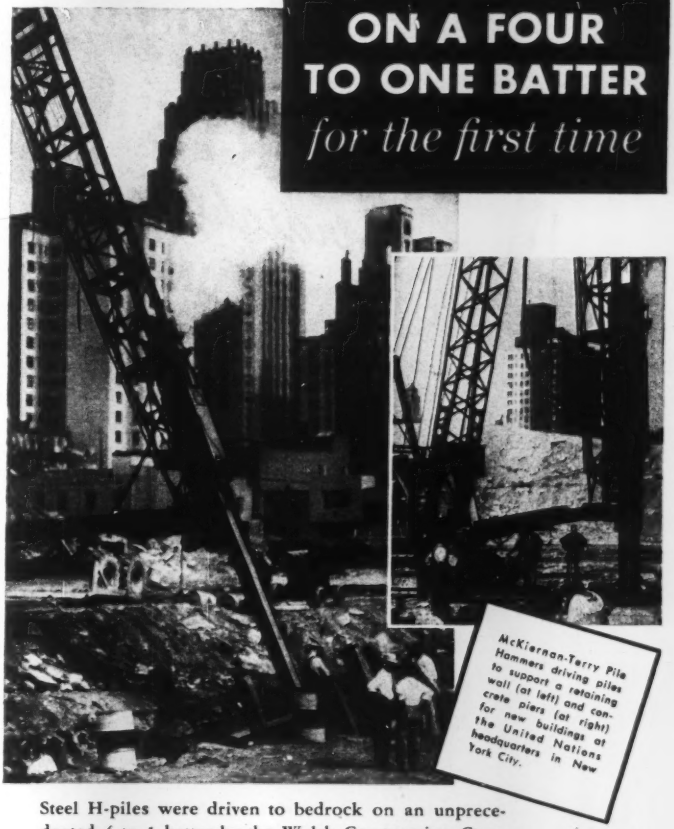

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fluoride to a million parts water. Longview, Wash., also will add fluorides to its water supply. The city council recently authorized the water superintendent to take immediate steps to obtain necessary equipment and materials for the purpose. And in San Mateo County, Calif., the health director was given permission to approve applications from the county's eight water companies to add fluoride to the water.

It is announced that Mayor Thomas A. Burke of Cleveland, Ohio, has approved a plan to add fluorine to the city's drinking water at a cost of about $150,000 a year, with suburbs sharing the expense. The proposal must be approved by city council. Among Indiana cities planning to fluoridate their water supplies are Indianapolis, Evansville, Fort Wayne, East Chicago, Gary, Hammond, and Lafayette.

For better water—This spring Warren, Ohio, will award contract for its new domestic water supply from Mosquito Creek reservoir, instead of the Mahoning River. Havens and Emerson, Cleveland engineering firm, estimated the cost at $4,300,000 when the plans were presented early in 1950. The project entails a raw-water pumping station and force mains, water-treatment plant, high-service pumping station, twin feeder mains, each of 30 in. dia for the nearly five miles to the city, and more elevated storage.

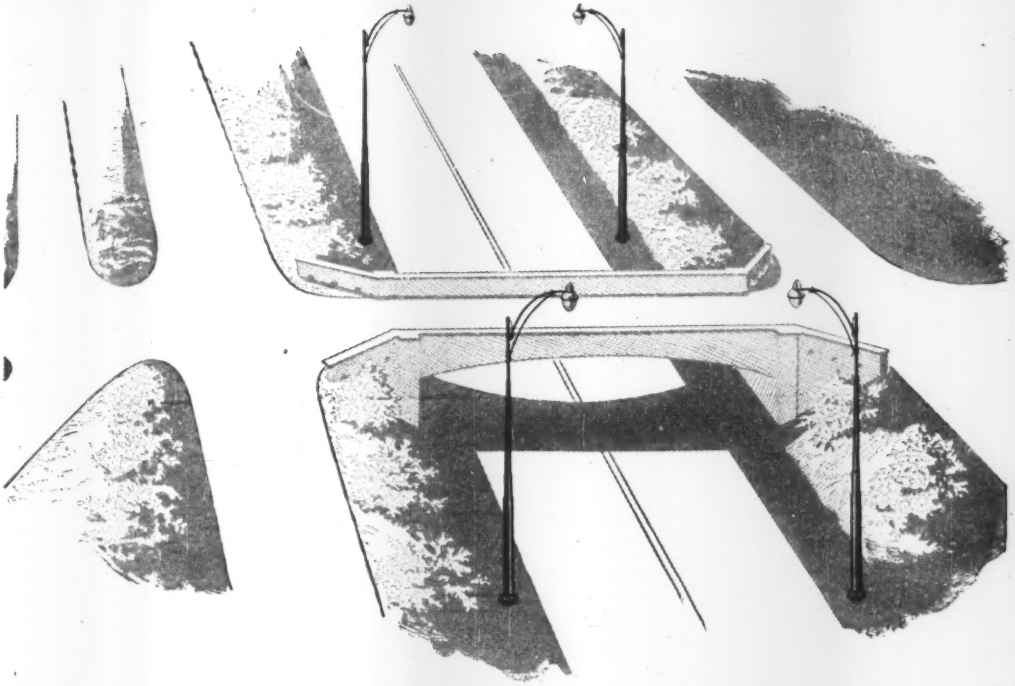
Waterworks materials sought—Dallas, Tex., has decided to hire a man to push its fight for needed materials to finish by summer the new city water plant at Carrollton. Lack of materials, especially steel for the large water main and bronze valves, has been threatening to delay the plant. Mayor Wallace H. Savage and City Attorney Henry P. Kucera went to Washington to confer with the National Production Authority, which promised that on account of the city's critical need, it would ask suppliers to fill orders. And the Tennessee Iron and Coal Co. has agreed to deliver 1,030 tons of plate steel to the Gifford-Hill American Co. of Dallas, constructors.

Buffalo, N. Y., to survey municipal expenditures

The public works department of Buffalo, N. Y., will be the first division of the city government to be scrutinized in a newly authorized survey of municipal expenditures and governmental structure made necessary by the need for new revenue to pay salary increases.

This department, with its four divisions of engineering, water, streets

(*Continued on page 55*)



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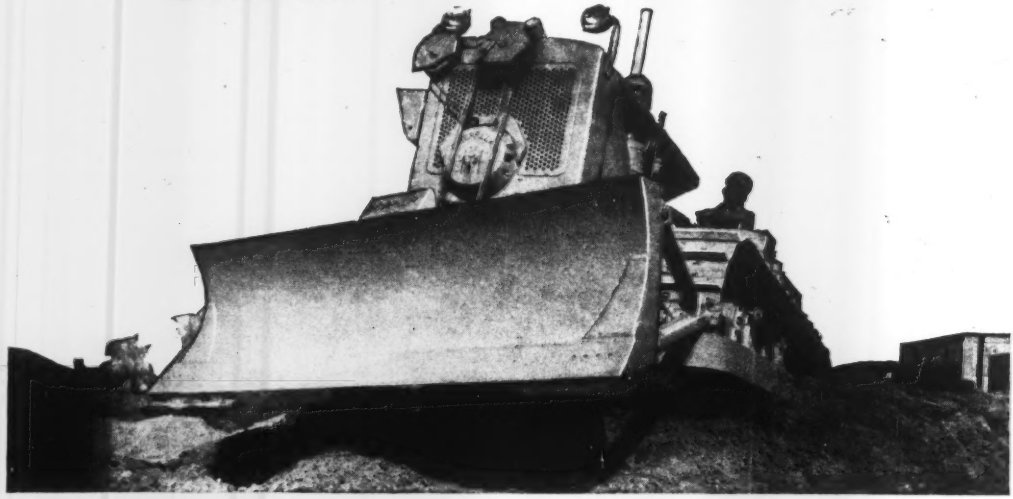

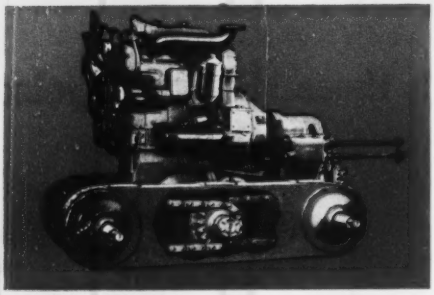

Look over this complete line of all-weather . . . all-purpose lubricants!

NAME ANY LUBRICATION PROBLEM you can think of! There's the right grade and type of Cities Service lubricant to do a real job for you. This performance-tested line of quality products will help speed your heavy duty operations, cut maintenance costs, prevent equipment breakdowns. Get in touch with the nearest Cities Service office to learn how these high grade lubricants can help you.

- **Trojan All-Weather . . . All-Purpose Greases**
- **Pacemaker Oils**
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- **Heavy Duty Motor Oils**

FREE—A helpful new booklet—Earth Moving and Construction Machinery lubrication. Above cutaway view is typical of illustrations found in this new 50-page book dealing with proper lubrication in the construction industry. Write today for your copy.

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Please send me without obligation your new booklet entitled "Earth Moving and Construction Machinery Lubrication."

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QUALITY PETROLEUM PRODUCTS

and buildings, has a current budget of more than $9,000,000 and employs 2,000.

The survey will be made by the George H. Elliott Co. of New York.

Latest parking developments

East St. Louis, Ill.—City council and the parking lot commission have approved construction of city's first off-street parking area. The 320-car lot will cost $250,000. City-owned and operated, it will be financed by revenue bonds, a method recently approved by the Illinois Supreme Court.—Location, Third Street, between Missouri Avenue and State Street.

Rushville, Ind.—This city of 6,500 population in southeastern Indiana has obtained a downtown parking lot for free parking and also has a new traffic set-up which includes new traffic signals, one-way traffic on narrow streets, and elimination or parking in two sections downtown. Practically all recommendations made by state engineers are being followed in the new set-up.

North Carolina—A bill has been introduced in the North Carolina Legislature which would authorize cities to set up off-street parking facilities, and to that end acquire, construct, improve, operate and maintain one or more parking projects. The bill would grant city officials the authority to purchase or condemn property "necessary or convenient." The authorities would be authorized to issue revenue bonds up to $3,000,000 for construction and operation of off-street parking facilities, including parking buildings.

Indianapolis, Ind.—Engineers have been studying possible sites for off-street parking facilities.

Coral Gables, Fla.—An ordinance is being considered which will require all future builders of residential property to provide off-street parking. Hotels and apartment houses would be required to provide one parking space for every three persons.

Tampa, Fla.—A 5-story concrete and steel parking garage to accommodate 600 cars at a time will be built on the corner of Tampa and Polk Sts. near the center of the downtown shopping district. Plans for the $750,000 cooperative enterprise were reported by Edwin K. Nelson, Jr., president of the Tampa Merchants Association. A new company has been chartered and already has applied to the National Production Authority for permission to begin construction.

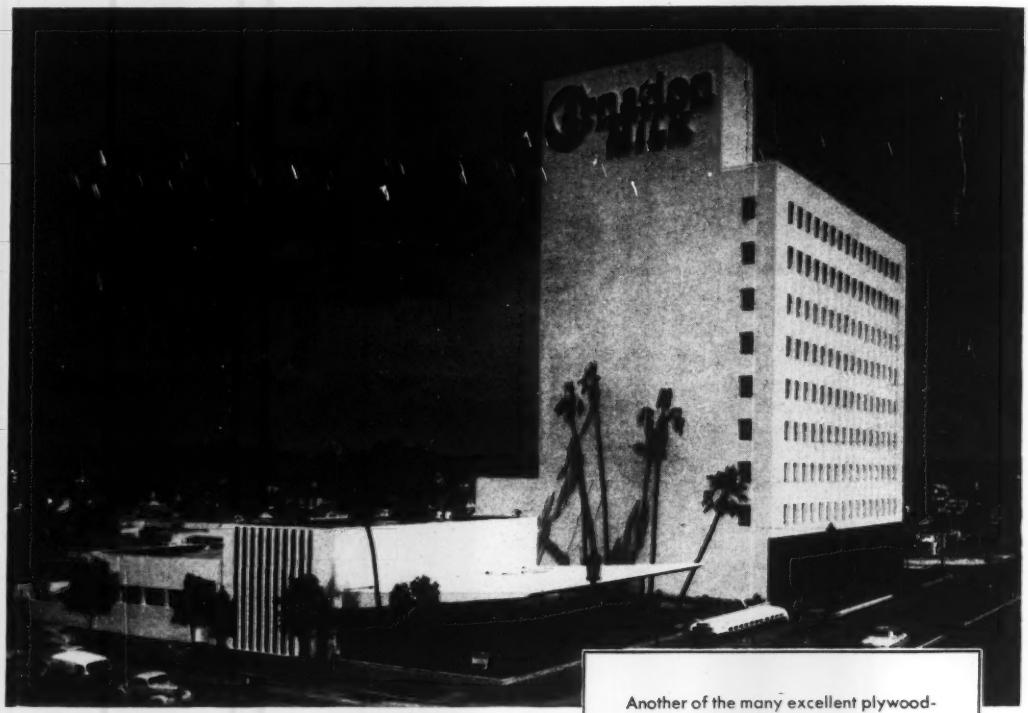
SAVE BY STANDARDIZING

...on CONTINENTAL RED SEAL POWER

Experience of users all through the construction industry points to one big fact with dollars-and-cents meaning for YOU: the broader the operation, the more time and money you'll save by standardizing on Continental-powered equipment and machines. • • • • You'll simplify your service, for one thing, because so many Continental parts are interchangeable from model to model. And even more important in its long-range results, is the expert engineering of every Continental to its work. • • • • Whether it's driving a compressor, pump, mixer, winch, conveyor, earth-mover, trencher, or highway or industrial truck, each Continental Red Seal has been built for the use in which you find it. It will operate efficiently, dependably, with minimum time out—and by reason of this same matching, so will the machine. • • • • When buying specialized equipment, keep these facts in mind. Insure satisfaction by choosing a make with Red Seal built-for-the-job power.

GOOD EQUIPMENT IS BETTER WITH CONTINENTAL RED SEAL POWER

Continental Motors Corporation
MUSKEGON, MICHIGAN



Another of the many excellent plywood-formed architectural concrete structures along Los Angeles' famed "Miracle Mile" section of Wilshire Boulevard, the Carnation Company's new Western headquarters building is 10 stories tall. Adjacent to the larger building is a two story building which contains an employee cafeteria and sales and display rooms for the company's dairy products. Architects on the project are Stiles Clements Associated Architects and Engineers, Los Angeles. Job Contractors: William Simpson Construction Company, Los Angeles, California.

"Plywood Forms Permit Finish Surface To Be Cast With Structure"

Say Architects of New Carnation Company Western Headquarters

PLYFORM CONCRETE FORM panels were specified on the new Carnation Company Western headquarters building by Stiles Clements Associated Architects and Engineers for "smooth fin-free concrete, ease of handling and overall job economy.

"Plywood offered the simplest and most direct medium for obtaining the smooth architectural concrete," explain the architects, "because plywood permitted an even-textured monolithic surface and the structure itself to be cast in one operation."

One more example of this fact: office building, factory, warehouse or bridge—architectural concrete or construction project—Douglas fir plywood creates smooth, fin-free concrete . . . affords economy through time and labor savings, simplified form construction and low cost per use.

Douglas Fir Plywood

AMERICA'S

Contractors Report Time and Labor Savings With Plywood Form Panels

Construction view shows forms in place on smaller building as larger structure is painted. Smooth, plywood-formed walls required a minimum of finishing before being given two coats of oil paint. "Use of plywood forms provided many savings in application time and construction costs," report the contractors, William Simpson Construction Co. "On the job, plywood's performance was entirely satisfactory in every way. We have used the material for many years and, in our opinion, nothing else equals plywood for concrete form work."

Forms were built by placing ⅝"-thick PlyForm panels across 2"x4" studding, backed by double 2"x4" wales. Forms were built-up in 16-foot long sections which were stripped and re-erected as pouring progressed. The plywood forms were re-used to job completion with an average of from 6 to 8 re-uses obtained from each of the panels.

Large, Light, Strong Real Wood Panels

For additional data on Douglas fir plywood for concrete form work, write (USA only): Douglas Fir Plywood Association, Tacoma 2, Washington. Of particular interest are two booklets: "Concrete Forms of Douglas Fir Plywood" and "Handling PlyForm".

BUSIEST BUILDING MATERIAL

For Smooth, Fin-Free Concrete Surfaces...

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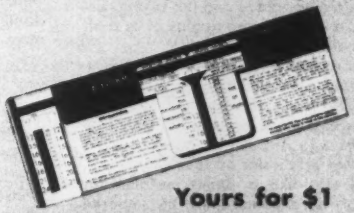
Concrete Form Panels

GENUINE DOUGLAS FIR PLYWOOD
PLYFORM
CONCRETE FORM PANEL
INTERIOR-TYPE GRADE B-B
D.F.P.A. INSPECTED

Smooth, fin-free surfaces . . . ease of handling . . . strength, rigidity, tightness . . . superior nail holding qualities . . . cost-cutting re-use factors —these are primary advantages of Plyform®. Highly moisture-resistant glues used in PlyForm panels permit multiple re-use (as many as 10 to 15 are not unusual). For the greatest possible panel re-use, however, specify Exterior-type EXT-DFPA® Concrete Form grade of Douglas fir plywood—bonded with completely waterproof phenolic resin adhesive. For special architectural concrete, requiring the finest possible finish, the architect or contractor may specify Exterior-type or Interior-type Douglas fir plywood in grades having "A" face veneer—or one of the new plastic-surfaced panels.



Yours for $1

New Keely PlyForm calculator gives construction data for plywood forms, based on hourly rate of pour. Complete with leaflet, "Design Assumptions for New Keely Calculator." Send coupon now!

DOUGLAS FIR PLYWOOD ASSOCIATION
TACOMA 2, WASHINGTON (Good in USA only)

Please send me ..... Keely Calculators. I enclose $1.00 each to cover costs.

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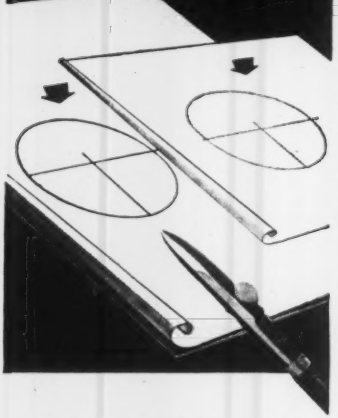

• The renown of Imperial as the finest in Tracing Cloth goes back well over half a century. Draftsmen all over the world prefer it for the uniformity of its high transparency and ink-taking surface and the superb quality of its cloth foundation.

Imperial takes erasures readily, without damage. It gives sharp contrasting prints of even the finest lines. Drawings made on Imperial over fifty years ago are still as good as ever, neither brittle nor opaque.

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FOREIGN

BRAZILIAN HOUSING—The building shown here under construction is one-half of a project for 600 apartments in the suburbs of Rio de Janeiro. They are the beginning of a development that will make 25,000 units available to the industrial workers of the city. Located near the suburban railway station of Lucas, they are being constructed by the Instituto de Aposentadoria e Pensoes dos Industriarios—the government-managed union of industrial workers in which membership is compulsory. Apartments have two sleeping-and-living rooms, kitchen, bath, service terrace. Monthly rental is about $11.

Rio lets contract for Santo Antonio removal

After nearly a year of legal and other delays, a $27,500,000 contract has been let for the removal of Morro Santo Antonio in Rio de Janeiro (ENR March 16, 1950, page 45). This project when completed will open up a large section of downtown Rio to new construction, and will add a considerable stretch to the foreshore of Guanabara Bay.

The hill occupies about 67 acres and is estimated to contain 6,500,000 cu yd—80 percent earth and 20 percent rock. This material dumped along the bay front will create a filled strip 550 ft wide on which a parkway will be built.

The fill job will include facing its full length with sheet piling to be protected with boulders. Channels for storm and sewage drains will be constructed to connect with existing lines. The work also includes the construction of retaining walls and abutments to protect the old Santo Antonio monastery, which will be the only feature of the old hill to remain.

The work has been awarded to a combination of Constructora Brasileira de Estrados S A and Estacas Franki, Ltda. The contract calls for completion in 730 working days.

Bureau of Reclamation helps India on Kosi Dam

A way of saving $10,000,000 in the cost of what will be the world's highest dam, the proposed 785-ft dam on the Kosi River in India, has been worked out by the U. S. Bureau of Reclamation at its Denver engineering center in tests for the Indian government.

It is explained by Acting Reclamation Commissioner Goodrich W. Lineweaver that although the original contract with the government of India was for a single load and stability analysis, two were made, because the engineers saw an opportunity for substantial economies in the designs so that India will save some 900,000 cu yd of concrete worth $10,000,000.

The reservoir impounded by the dam would irrigate 4,000,000 acres of land, an area larger than Connecticut and Rhode Island. Unique engineering problems at Kosi are the danger of earthquakes and the very unusual silt load of the river—397 ac ft per 100 sq mi of catchment.

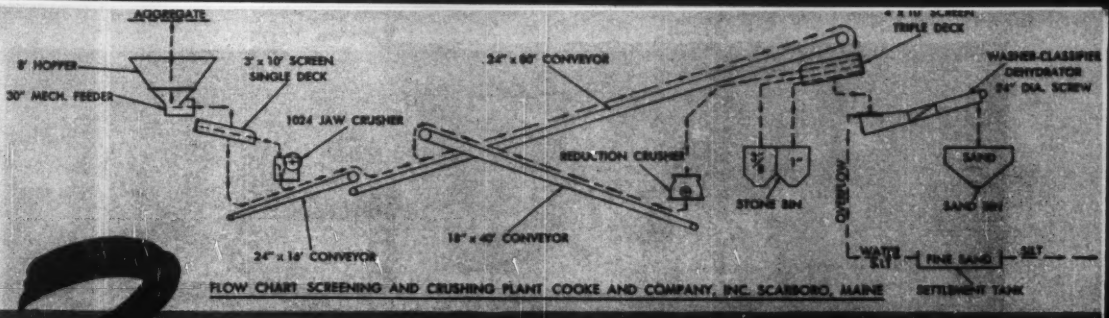
Foreign briefs

French contracts in Latin America—Contracts obtained by French companies in Latin America recently include a $10,000,000 steel plant in Peru; a $25,000,000 contract to construct Colombia's first steel combine; a Brazilian oil refinery; and sugar refineries in Uruguay and in Sao Paulo, Brazil.

Swedish air raid shelters—Blasted into solid granite, eight bombproof air raid shelters are being built in Stockholm, Sweden. In peacetime they will be used as garages, schools, movie houses, restaurants, etc; in wartime they could give full protection against rockets, mine bombs, and, it is said, even atomic bombs.

Indian national laboratory—Building has started at Roorkie, India, on the Central Building Research Institute. The seventh in a chain of national

(*Continued on page 61*)



FLOW CHART SCREENING AND CRUSHING PLANT COOKE AND COMPANY, INC. SCARBORO, MAINE

3 Times the Production

at less than HALF the cost

Over-all view of plant from discharge end. Truck in foreground is receiving load of washed sand from sand bin.

That's the experience of Cooke & Company with their new Austin-Western crushing and screening plant. Cooke & Company operate large gravel and sand pits in Scarboro, Maine; sell concrete mix, asphalt mix, washed gravel and washed sand. The separation of aggregate into stone of two sizes—"peastone" and "buckwheat"—and washed silt-free sand is the principal operation.

In the words of A. C. Stanley, president of the company—

"Compared with our previous operation, we save two trucks and four men — a total of $92.00 daily . . . are producing three times as much as before, at less than half the cost . . . quality of the gravel and sand produced has been very satisfactory . . . clean, carefully washed material is important when you want to obtain concrete that does not deteriorate."

Each Austin-Western plant is "tailor-made" for a particular production problem. Our engineering department will be glad to discuss yours.

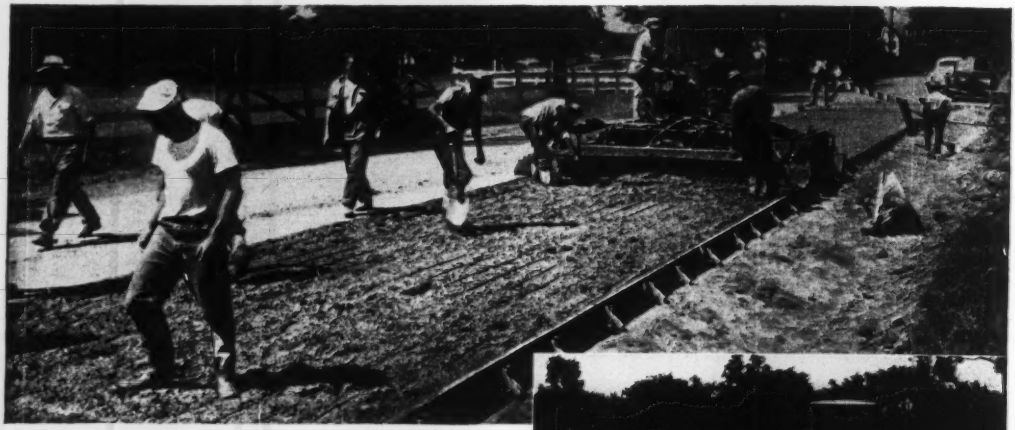
AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS, U. S. A.

Close-ups of primary crusher, screen and feeder.

At the left, three-deck screen over two-compartment stone bin. At the right, sand-classifier-washer-dehydrator over sand bin.

Feeding and discharge ends of double-screw, 24" washer-classifier-dehydrator, which has a capacity of 120 tons per hour.

Austin-Western



▲ Finished bridge approach takes shape as screed smooths the concrete over Bethlehem Bar Mats. Float finish already applied behind screed.

▲ Scraper moves into position for finished grading. At right background, paving proceeds at fast pace. Note finished lane, left of scraper.

Road Improvement in Bucks County, Pa.

A recent road-improvement project authorized by the Pennsylvania Department of Highways involved the construction of a bridge, plus approaches, on Route 178, near Doylestown, Pa. These on-the-job photographs show various phases of construction of the approaches and the bridge itself. Contractor: J. D. Eckman, Atglen, Pa. Bridge reinforcing, bar mats and dowel units were furnished by Bethlehem.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

STEEL FOR HIGHWAYS

BETHLEHEM STEEL

Dowel Units • Reinforcing Bars • Bar Mats • Guard Rail
Guard Rail Posts • Wire Rope and Strand • Pipe
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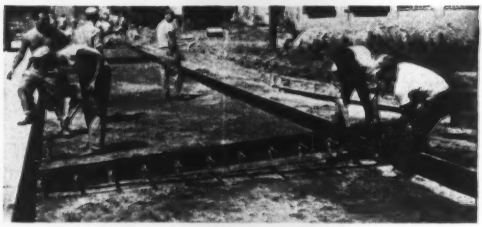
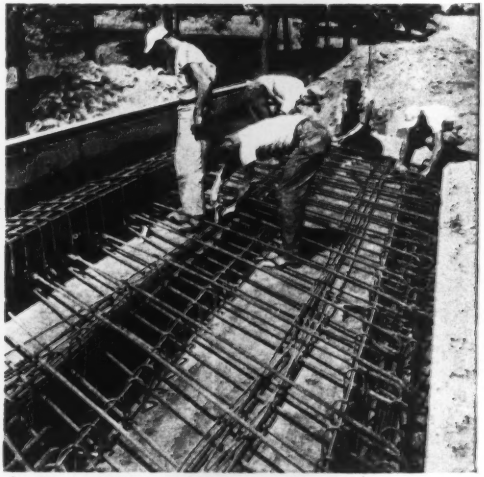
Timber Bridge Hardware • Tie-Rods
Sheet- and H-Piling • Fabricated Structural Steel



▲ Workers place Bethlehem Dowel Unit. The unit is designed to keep dowels accurately aligned in concrete, both horizontally and vertically.

▲ Placing Bethlehem Hinged Bar Mat over first course. The hinged portion of mat folds over double. Mat can be handled easily by two men.



▲ Showing Bethlehem Reinforcing Bars being tied, prior to pouring concrete for bridge. Bars have high lugs to prevent slippage in concrete.

laboratories, it will conduct research on building materials, on engineering and structural aspects of buildings and foundations, on residential comfort, durability and speed of construction.

Rangoon General Hospital—U. S. economic and technical aid will be given to Burma to improve facilities of the Rangoon General Hospital. ECA also has plans to help the expansion of the University of Rangoon Medical College.

For projects in Israel—A Point 4 agreement has been made with Israel. That new country has suggested that American experts would be useful and welcome in connection with road construction, railways, irrigation, and public health services, and other parts of its social and economic program.

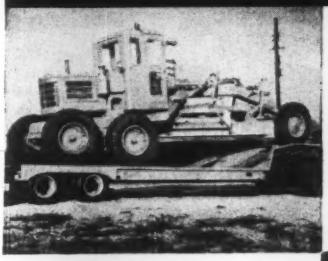
Koppers Co. contract—The Koppers Co., of Pittsburgh, has been awarded a contract to design and supervise construction and start operation of a battery of chemical coke ovens and a blast furnace for the Brazilian National Steel Co. (Volta Redonda). The blast furnace will have a 25-ft dia hearth, and will double the potential pig iron capacity of the Brazilian plant. Work will be done by the company's Freyn engineering department, Chicago.

Austrian hydro—The first international hydro electric project to receive aid under the Marshall Plan will be a new 96,000-kw plant to be built on the Inn River between Austria and Bavaria. The Economic Cooperation Administration will supply $540,000 for purchase of U. S.-built construction equipment, while $28,000,000 will be financed by Austrian-Bavarian Power Co.

(*Continued on page 62*)

COOPERATIVE BRICKWORKS—Australia's first cooperative brickworks began production recently at Enfield, a suburb of Sydney, New South Wales. The works are now producing enough bricks to build at least 300 houses a year. It is planned to establish a string of cooperative brickworks, lumber yards and factories to produce material for building houses for which there is a great demand in that country of the antipodes.

What's *Your* hauling problem?

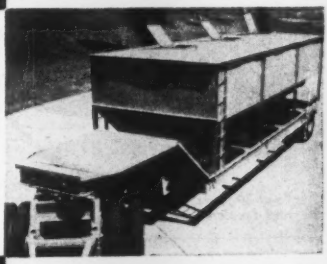


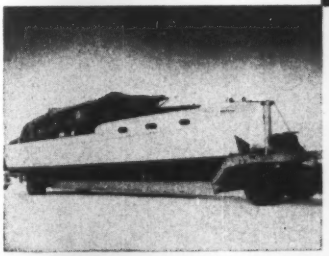
Motor Graders!

To speed hauling of motor graders within 50 to 100-mile radius, La Crosse developed this 19-ton tandem axle trailer, with special ramp for loading grader steering wheels on trailer gooseneck. Trailer idea cuts grader travel time 50% . . . saves wear on graders.

Bulk Materials!

This special La Crosse-engineered "bin trailer" eliminated high labor cost for bagging and unbagging corn starch . . . cut delivery time 90% from processing mill to finishing plant 2 miles away. Tapered La Crosse bin is equipped with worm gear unloader at bottom.





Boats, etc.!

Featuring low height and special "hull-tailored" saddles, this custom-built La Crosse trailer cut the cost of hauling a 13-ton Chris Craft over 50% per trip. It also simplifies loading and unloading . . . insures a safer ride without damage to structure or finish of boat.

Capacities 8 to 67 tons—single, dual or tandem axle LC-14R

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Average load: .....tons; .....ft. long
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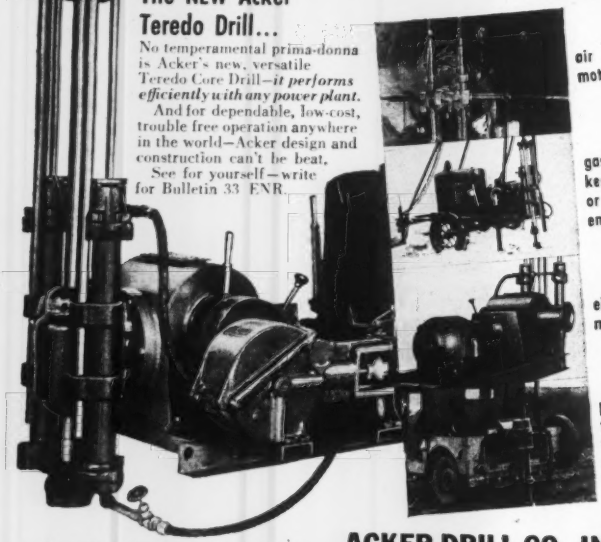
And for dependable, low-cost, trouble free operation anywhere in the world—Acker design and construction can't be beat.

See for yourself—write for Bulletin 33 ENR.



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AT LAST! AN OPEN-END RATCHET WRENCH — the world's first true *universal* wrench. A patented design for connections on tubing, rods, piping, conduit, studs, etc. Sixty-four socket sizes from 3/8" to 4". Smallest effective ratcheting arc yet—5° to 7½°. TAC will also do every job any ordinary ratchet wrench will do: one TAC set replaces literally dozens of single-purpose hand tools.

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Cable breaks on Rio's aerial tramway

Failure of the anchor section of the main cable has been blamed officially for the recent accident which left 21 passengers trapped in midair for seven hours on the famed Sugar Loaf Mountain aerial tramway over the harbor of Rio de Janeiro. A second safety cable bore the weight of the car plus the festooned main cable without mishap while an emergency car was constructed and let down to take off the passengers.

According to tests, the weight being carried by the broken cable section at the time of the accident was 10 percent less than its designed capacity. The cable, built in Germany, was almost two inches thick and composed of 444 steel strands, having a load capacity of about 192 tons.

The break came only about three feet above the turn-back point of the anchor section, known as the "rabicho" or pigtail. This section was about 30 ft. long from the turnaround to the splice with the main carrying cable. The main cable itself did not break.

Point 4 mission to Iran—Two Public Health Service officers, Dr. Emil E. Palmquist and Frederick F. Aldridge, Seattle, Wash., are leaving for Iran to join the Point Four mission which is conducting a rural development program there. Dr. Palmquist will serve as deputy technical assistance director of the Point Four program in Iran and director of its health activities. Mr. Aldridge will serve as chief sanitary engineer of the mission and advisor to Dr. Palmquist. They will organize and supervise the operation of local village demonstration teams for the training of Iranian personnel as public health officers and malaria control workers in an effort to improve living standards and assist in strengthening health services throughout the country.

Underground power station — The power station for the new Lavey hydro projects in Switzerland is located underground in a large chamber cut out of rock. This site was chosen not primarily for protection against air attack, as has been done in other stations in Europe recently, but because of poor soil conditions along the Rhone River at the site. The ground is largely alluvial and was found to be so lacking in bearing capacity as to require very expensive foundations. Their cost made the underground site more attractive, and of course the protection against bombing provided an added incentive.

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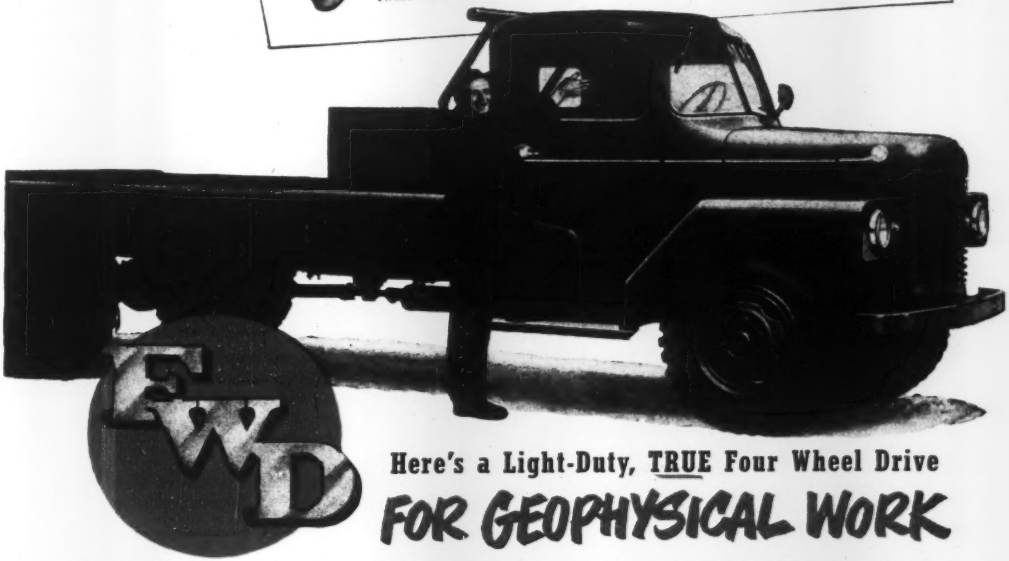
"Rough going or soft bottom, FWD extra traction gets us where we want to go—and *safely*, whether the haul is over-the-highway or off-the-road—we'd rather drive an FWD."

YOU GET LOWER MAINTENANCE AND LONGER TRUCK LIFE

"FWDs proper distribution of load and power means less strain. Less strain means longer wear—fewer repairs. FWDs give us up to twice the life of ordinary trucks."



Here's a Light-Duty, TRUE Four Wheel Drive FOR GEOPHYSICAL WORK

You'll find that the new LD (light duty—14,500 lb. GVW) provides a firm safe mounting for drill rigs and geophysical instruments. It's a powerful, sure-to-get-there truck for hauling water or explosives, too. Ask for "The Story of the LD" plus facts on the complete FWD line. THE FOUR WHEEL DRIVE AUTO CO., Clintonville, Wis. Canadian factory — Kitchener, Ont. *World-wide Sales and Service.*

America's Foremost Heavy-Duty Truck

Tops in sales because they keep costs *down*!

Month after month, year after year, International Trucks cut hauling costs and give you better on-the-job performance.

Where's the proof?—in the carefully-kept cost records of heavy-duty haulers; the same men who have kept Internationals first in heavy-duty truck sales for 19 years. Their records are black-and-white proof that Internationals give you lower operating and maintenance costs even on the toughest jobs.

Where's the pay-off for you?—every new International Truck is *heavy-duty engineered* with extra stamina in every part to give you this same cost-cutting performance with longer truck life on *your* job.

You get the right truck for your job

When you buy a new International Truck you don't gamble with a "misfit" truck. You get the engine, the transmission, the axle, *everything* specialized to fit your particular job. You get a truck that's built to last and give you more efficient on-the-job performance. That's why over half the Internationals built in the last 45 years are still in operation.

You get a truck that drivers go for

The better a driver likes his truck, the better care he takes of it. That's why every new International is specialized from the driver's standpoint, too. An all-new steering system gives the driver more positive control from a more comfortable position. New Super-maneuverability lets him turn in the shortest *practical* circles—helps him in the tight spots.

The new Comfo-Vision Cab is the "roomiest cab on the road." It has mighty comfortable, fully-adjustable seats. And the driver enjoys full-front visibility through the one-piece Sweepsight windshield.

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International Harvester Builds McCormick Farm Equipment and Farmall Tractors . . . Motor Trucks . . . Industrial Power . . . Refrigerators and Freezers

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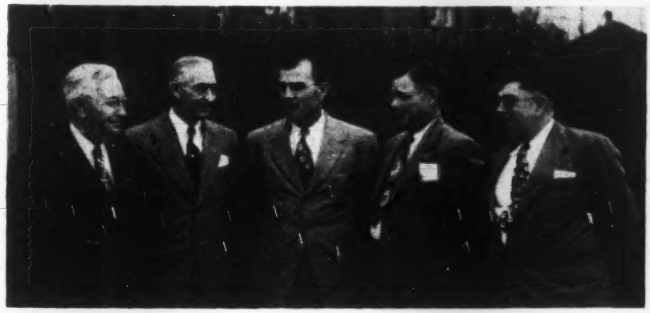

NEW OFFICERS—of the Indiana County Highway Supervisors Association are, left to right: Ernest H. Coffin of Richmond, president; Will Slogle, Liberty, vice-president; Frank Shideler, Huntington, vice president; Leaton L. Day, Lebanon, secretary-treasurer, and Harold Mason, Danville, retiring president.

New Appointments

Highway departments

E. A. Davidson, testing engineer, Delaware highways.

F. C. Higley, acting div. engineer, Ohio highways, Delaware, Ohio.

David M. Nichols, member of Maryland Roads Commission.

Michigan highways, **H. H. Cooper,** Kalamazoo dist. engineer; **J. A. Becker,** acting engineer Cadillac dist.; **H. F. Rye,** asst. to deputy commissioner-chief engineer; **P. E. Plambech,** acting engineer of road design; and **Joseph Anton,** office of the chief engineer.

Sivert Thompson, state highway commisisoner, North Dakota.

Earle L. Sheley, div. engineer Ohio highways at Delaware, Ohio.

Industrial and Commercial

R. A. Helmer, chief engineer, Standard Testing Laboratories, Oklahoma City, Okla.

Leonard Haeger, building materials expediter, National Association of Home Builders.

Wm. Lenco, bridge engineer, Canadian National Railways, Moncton, N. B.

Wm. D. Kinsell, manager, construction engineering dept. Pure Oil Co.

Recent appointments to the staffs of the engineering, operations and maintenance divisions of the Gaseous Diffusion Plant, operated by the Carbide and Carbon Chemicals Div., Union Carbide and Carbon Corp., Oak Ridge, Tenn., are: **D. M. Papke, E. L. Calvin, L. L. Parris, G. P. Gilliam, L. H. Beam, R. E. Harris, J. N. Evans, C. M. Erickson, W. F. Dority III, L. B. Curtis, J. L. Loper, Wm. Halchin, R. A. Yeakey, D. P. Ziemke, W. L. Wright, D. D. Norwood, A. J. Andrews, W. N. Johnson, L. R. Powers, Jr., D. E. Hatch, W. A. Nolan, H. A. Fisch, S. M. De Camp, Jr., L. F. Parsly, Jr., J. L. Gamble, C. E. Hall, A. F. Vincent, L. B. Jones, E. H. Bell, L. M. Gearhart, Abernathy Graham, E. A. Chambers, W. H. Campbell,** and **C. O. Langebrake.**

Recent engineering appointees to the staffs of the divisions of the Oak Ridge National Laboratory are: **D. M. Collier, K. M. West, T. M. Gayle, B. J. Massey, T. M. Kegley, Jr., D. R. Ward, J. D. Roarty.**

Fred Hamlin, formerly with the Bridge Dept., Calif., highways has started a portable bridge renting business at San Luis Obispo, Calif.

Edward A. Ravenscraft has been elected a vice-president of Abbott Laboratories, Chicago.

Carroll S. Anderson, field project mgr. for Du Pont Co.'s polyester fiber at Kingston, N. C.

C. M. MacWilliam, engineering studies, Connecticut Light & Power Co., Waterbury, Conn.

Don H. McCreery, staff of Holmes & Narver, Los Angeles engineers.

Wm. Denny, vice-pres. Marine and Heavy Construction div. Merritt-Chapman & Scott Corp.

Alfred M. Heaton, resident vice-pres. Merritt-Chapman and Scott Corp. in charge of New England operations.

Jas. W. Martin, exec. asst. to Port Director W. J. Heavey, Houston, Tex.

Charles L. Barber of Peterson, Hoffman & Barber, Toledo, Ohio,

(*Continued on page 68*)

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— Writes Milton A. Hendrickson, Vice President Hendrickson Bros., Inc. Valley Stream, N. Y.

On the 1,000,000 cu. yd. Northern-Sagtikos State Parkway job in Suffolk County, N. Y., three Heiliners prove that they pay out in all kinds of ground and fill conditions. Soil is loam, clay, and sand. Hauls range from 1,200 to 5,500 feet.

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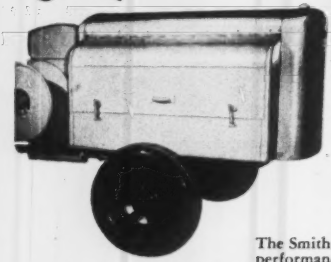

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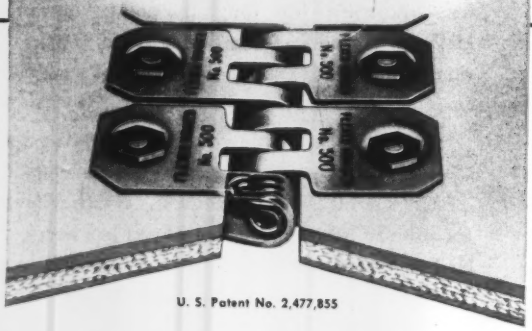

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Retirements

L. R. Higgins, acting dist. engineer, Bureau of Public Roads, Boise, Ida.

C. E. Russell, Moorcraft, Wyo., project engineer, Wyoming State Highway Dept. 28 years.

Brig. Gen. John F. Conklin, after 36 years in the Army Corps of Engineers.

W. I. Tomkins, designing engineer, Bureau of Bridges, Ohio highway, 50 years.

Resignations

Howard R. Graham, Madison County engineer, London, Ohio.

John I. Thompson, engineer and assistant administrator of the Agriculture Department's Production and Marketing Administration to join John I. Thompson & Co., consulting engineers.

Carl E. Alden, acting dir. of navigation U. S. Engineers, Ohio River Div.

Louis B. Bjastad, McLeod County, Minn., engineer to return to active duty with the U. S. Navy.

T. E. Riley, engineer, Henry County, Ia.

T. C. Banhagel, dist. engineer Michigan highways, Kalamazoo, to become supt. of road construction for Mid-American Engineering Corp.

Leonard Klarich, asst. professor of civil engineering, University of Colorado to enter private industry.

James F. Pou, mgr. building div., Carolinas Branch, A.G.C. to become asst. dir. of foundations, N. C. State College of Agriculture and Engineering.

Robert L. Moore, senior engineer, construction section, National Safety Council, Chicago to become engineering consultant, Lumbermen's Mutual Casualty Co. Chicago.

A. S. Noland, traffic engineer, Tennessee highways, Nashville.

W. J. Van Arnum, supt. of filtration, Mahoning Valley Sanitary dist., after 19 years.

Government agencies

Clifford R. Salmen, acting dist. engineers, Bureau of Public Roads, Boise, Ida.

Chas. B. Patterson, chief of technical services, div., Waterways Experiment Station, Vicksburg, Miss.

Herbert M. Leppich, project engineer for construction of a chemical processing plant at Idaho Falls, Ida., for the Atomic Energy Commission.

State, City and County

Prof. Harold Neilsen, University of Dayton, chief air pollution control engineer, Dayton, Ohio.
Thomas D. Hunt, traffic engineer, King County, Seattle, Wash.
A. W. Fabry, street superintendent, Canton, Ohio.
H. G. Ekadahl, Madison County engineer, London, Ohio.
John Taylor, chief engineer, New Castle County, Del.
R. S. Russell, planning director, Steubenville, Ohio.
Walter H. Tacke, expressway engineer, Milwaukee, Wis.
C. S. Boring, dir. housing commission, Dearborn, Mich.
L. A. Bergman, dir. public wks, Jamestown, N. Y.
Thomas Lamb, bridge engineer and J. A. Griffiths, drainage engineer, Winnipeg, Man.
Frank X. Burkhart, city school buildings engineer, Charleston, S. C.
M. L. Riehl, supt. of filtration, Mahoning Valley Sanitary district, near Youngstown, Ohio.
Ernest H. Paffrath, sewer commissioner of St. Louis, Mo., has celebrated his 42nd anniversary as a city employee.
Miss Barbara Terrett, housing and planning offices of the Washington, D. C. District Redevelopment Land Agency.
M. B. Larsen, engineer, Henry County, Iowa.
Walter Baseman, highway engineer, McLeod County, Minn.
L. J. Moore, engineer, McHenry County, N. D.
A. J. Bladholm, city engineer, Marshall, Minn.
L. P. Cabana, head, roads div. Public Works Dept., Montreal, Que.

Honors

Rudy A. Simonson, Bureau of Reclamation engineering aide at Elverta, Calif., Dept. of the Interior Gold Medal for distinguished service for heroism during a blizzard at Klamath Falls, Ore., in which he made heroic efforts to save A. G. Ribbech, chief, general engineering section, lost in the severe blizzard of last winter.
Wilbur S. Hanna, Billings, Mont., Dept. of Interior Gold Medal for distinguished service, after 44 years as engineer.
Henry Gerharz, retired engineer U. S. Indian Service, citation and bronze medal, Dept. of the Interior, in recognition of 22 years of government service.

(Continued on page 70)

Chicago Daily News Photos

When lock repairs held up barge shipments of oil on the Illinois waterways recently, three 3200-foot lines of Naylor lightweight pipe worked around the clock to by-pass the locks and maintain the flow of oil and gasoline through shuttle barges into Chicago.

About 5,000,000 gallons daily were handled in this way during the emergency—just another example of the flexible and dependable service provided by Naylor pipe.

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Consequently, MARION Hoists actually do their job easier—hydraulic systems last longer, are more efficient and dependable, and, in the long run, more economical to own and operate.

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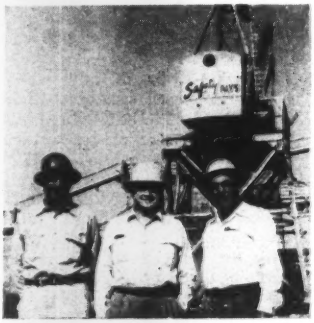
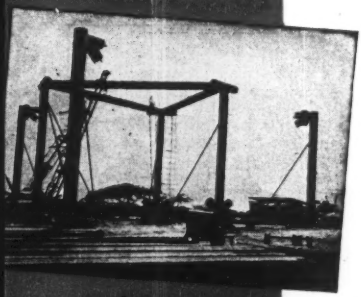
Rocky Mountain engineers in charge of construction on the Denver (Colo.) Valley Highway are, left to right, Dan W. Ormsby, urban engineer; F. K. Merton, construction engineer; and W. B. White, resident bridge engineer.

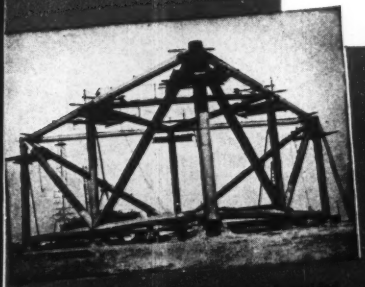


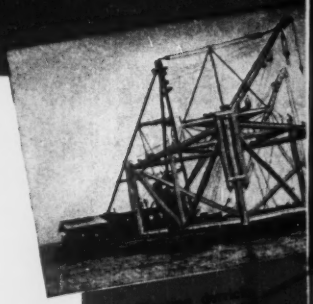
Safety pays, say these supervisors on construction of Harlan County Dam on the Republican River in southern Nebraska. They are, left to right: E. H. Swanson, concrete foreman, Harlan Construction Co.; B. V. Reany, project engineer, Corps of Engineers; and J. C. Moore, general superintendent for the contractors.

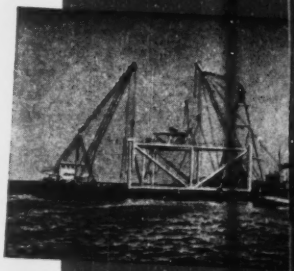
Leonard H. Meermans, civil engineer in the Pittsburgh District, Corps of Engineers, U. S. Army, is shown receiving a suggestion award from Col. Conrad P. Hardy, district engineer. H. E. Anderson, chairman of the local committee on suggestions, looks on. The suggestion covered an improved means of treating poison ivy, long a hindrance to Corps of Engineers' ground clearing work for construction purposes in the Pittsburgh area. Mr. Meermans received his Bachelor's Degree in civil engineering from the University of Pittsburgh in 1928.

THE WORLD'S MOST UNUSUAL SOIL BORING JOB









The Problem: 250-foot Gow soil borings, accurately spotted five to ten miles offshore in the deep waters of Lake Maracaibo, Venezuela. The Project: pile foundations for future oil-well derricks. Special Hazard: 70-mile-an-hour "chubascos," violent squalls that would wreck temporary platforms.

The Solution: Raymond engineers designed a triangular *floating* platform of 22″ steel pipe, welded and watertight. The three corner members were left open for 120-foot-long anchor spuds. Assembled on shore from steelwork fabricated in New York, the 60-ton float was skidded onto two barges and towed 32 miles to the first boring location where floating derricks launched it. Spuds and deck equipment were placed later, including winch-controlled anchors at each corner to help in spotting the float and holding it steady during boring operations.

The Moral: When the problem is tough, the answer must still be *right*. That's when it pays to have a resourceful, experienced organization on the job . . . like Raymond!

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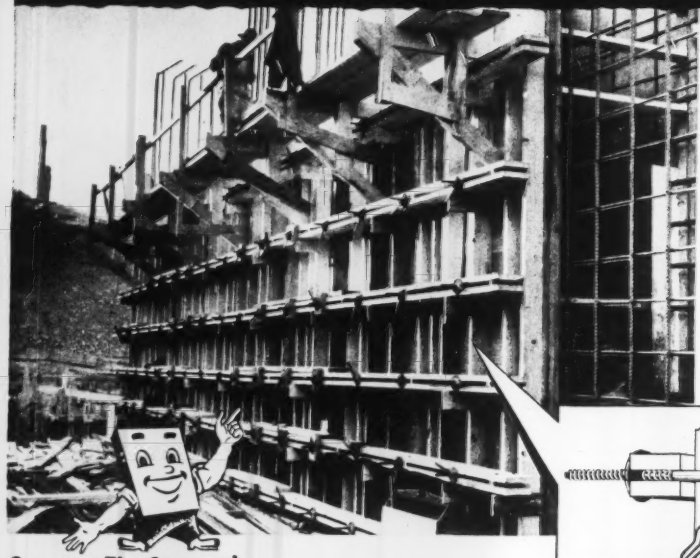

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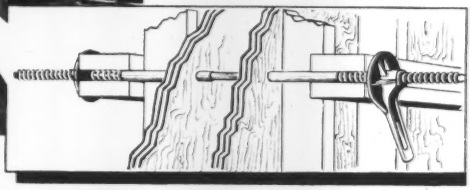

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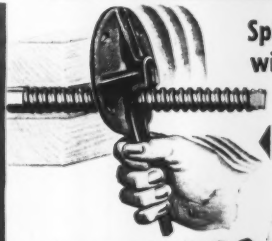

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EDUCATION, RESEARCH

Army improves sea-water distillation

Distillation equipment of the compression type has been chosen by the Engineer Research and Development Laboratories of Ft. Belvoir, Va., for concentrated studies in how to get drinking water from the sea.

Since 1941 a distillation test center has been set up on the seacoast at Fort Story, Va., and the latest model developed is now under test in Bermuda.

Chief problem in the distillation process has been scale forming on tubes of the evaporator—causing shutdowns for cleaning that cut efficiency by 50%. A way out of this difficulty was asked of the University of California. Researchers there found certain salts in a super-saturated condition would deposit on any available surface and concluded that by making surface areas available outside the evaporator, they could keep down the amount of scale forming inside.

In present tests, a control stabilizer is being used; it is a metal shell containing sand or limestone as a contact material through which brine from the evaporator is circulated upward. Most of the scale forms on the stabilizer material; only 5% as much of it forms in the evaporator as did previously, without control.

The improved unit should run six months without stoppage for scale removal; the old one, without scale prevention, needed to shut down after every 700 hours of operation.

Capacity of the distillation unit to put out 250 lb of distilled water per pound of fuel is not affected by the scale prevention process.

The thermo-compression distillation unit now under test is electrically powered and rated at 1,250 gal per hour. (Troops in bivouac need 5 gal per man per day; field hospitals need 150 gal per bed per day.) It weighs 40 tons, but knocks down to parts not exceeding 7½ tons for shipment.

Another "area" water supply problem being met by Fort Belvoir researchers is that of making water from snow in Arctic regions. A skid-mounted steam generator rated to produce 200 gal of water per hour is under development. Its potentialities for jetting in ice and frozen soil have been noted in tests made thus far.

Artificial quake tests made in Los Angeles

A full-scale building was subjected to artificial earthquake forces in Los Angeles recently. This is believed to be the first time for such a test.

The building became available for testing through a freeway right-of-way clearance program. Tests were conducted by the Earthquake Engineering

(Continued on page 74)

BITUMINOUS MATERIALS—Various problems in the use of bituminous materials in road building were considered at a recent institute at the University of Wisconsin. Watching Prof. Leonard F. Hills, associate professor of engineering in the Wisconsin Extension division and director of the institute, weigh a sample of bituminous concrete, are left to right, Harry K. Bumgarner, patrol superintendent of the Rock County highway department, Janesville, Wis.; Neal Bartholomew, city engineer of Eau Claire, Wis.; B. E. Fieve, city engineer of Stevens Point, Wis.; William Furniss, of the American Bitumuls of Maplewood, Mo.; Robert E. Fleischer, Sheboygan County highway commissioner, Sheboygen, Wis.; and Ray R. Swan, Dane County highway commissioner, Madison, Wis.

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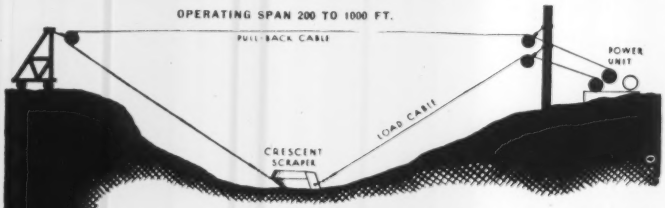

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Research Institute, a non-profit group formed by representatives of various engineering societies and universities on the West Coast.

Motion was induced by a shaking machine that produced a 6,000-lb horizontal force of sinusoidal variation. This unit was installed on the third floor of the 40x120-ft, four-story, reinforced concrete building. Resulting building motion was measured with vibration meters. The forces of the shaking machine were applied parallel to the 40-ft-long front and rear walls and these provided the only resistance to the horizontal forces.

When the shaking machine was operated in resonance with the first and second modes of vibration of the structure (i.e., at 2.6 and 5.1 cycles per second), strong accelerations were produced that exceeded 5% gravity at the roof. The observed damping in the structure was considered low—being less than 10% of critical damping.

Although the building was not originally designed to resist earthquakes, it showed no distress when subjected to the vibration. Existing shrinkage cracks at the corners of the windows were observed to have relative motion during the shaking. Analysis of the test data will, it is hoped, furnish useful information on the ability of such structures to resist earthquake and blast loading.

Structural steel scholarships offered

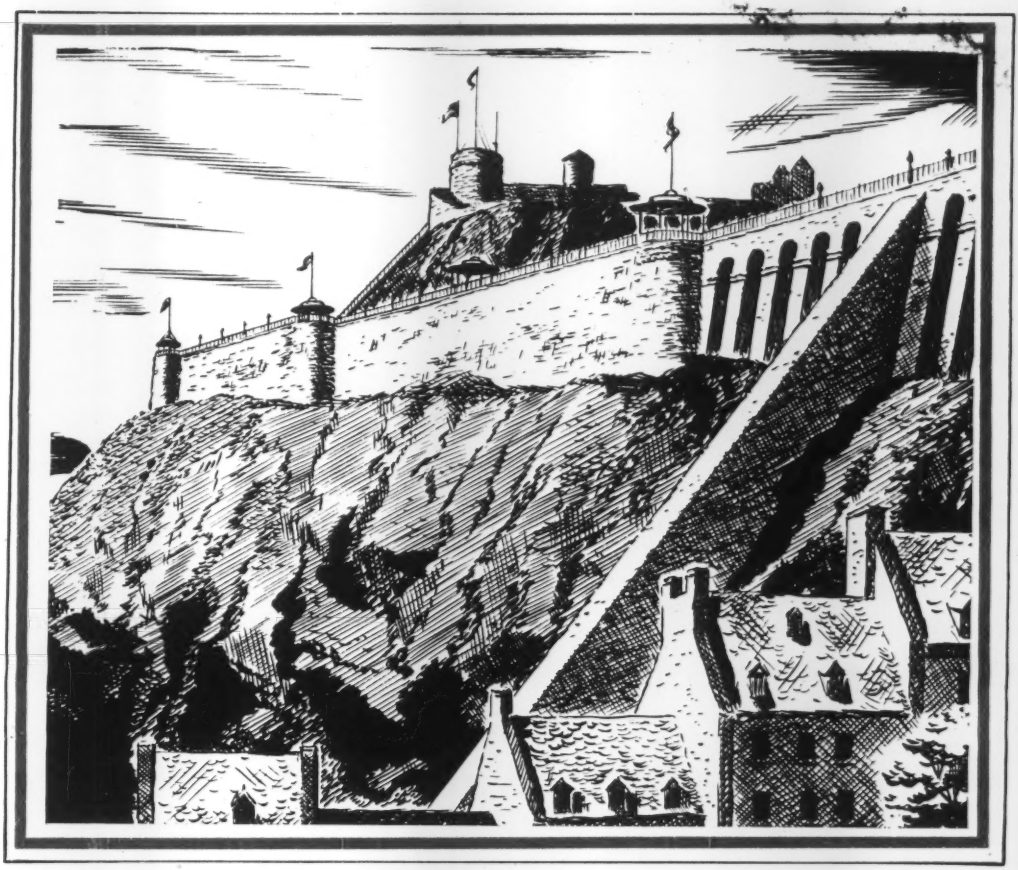
To encourage future engineers to enter the fabricated structural steel industry, the American Institute of Steel Construction will award 10 scholarships of $1,000 each in American colleges and technical schools during 1951.

Last year, in a national competition, 10 high school graduates received the first scholarships offered under the institute's new educational program.

The objective of the institute's scholarship plan, according to L. Abbett Post, executive vice-president, is to train engineers and administrators for the industry, although recipients of the scholarships are under no obligation to continue in the industry after graduation.

To be eligible for a scholarship a candidate must be proposed by the executive head of a member company of the Institute. A candidate need not be an employee, or the dependent of an employee, of the sponsoring company.

Scholarships are available only to students who pursue the full course in civil engineering offered at any one of 125 colleges located throughout the country.



Quebec's famous Citadel, over 330 feet above the St. Lawrence, as it looked 100 years ago

Romantic Quebec has a cast iron gas main in service that was installed over a century ago. Reminiscent of those days are the horse-drawn vehicles for nostalgic tourists. Now, how could the gas engineers have foreseen the advent of trailer-trucks and giant buses, and the resultant traffic-shock? . . . That sewers and conduits for utility services would ultimately share the underground at risk of soil disturbances? Yet that gallant old cast iron main has had the necessary shock-strength and beam strength. Effective resistance to corrosion, as well as strength, are *must* factors of long life in pipe to be laid under city streets. This is shown by the fact that cast iron water and gas mains, laid over 100 years ago, are still serving in the streets of more than 30 cities in the United States and Canada.

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MEETINGS

Charles Barnhart was elected president of the New Mexico Society for Professional Engineers. Other officers; Lawrence D. Wilson, first vice-president; A. S. Walters, second vice-president; Thomas Castonguay, re-elected secretary-treasurer. Daniel B. Jett, and E. R. Harrington, directors.

Charles A. Smith has been elected president of the General Contracting Employers' Association of Buffalo, N. Y., David Donald, vice-president. Executive committee, Herbert F. Darling, Joseph Davis, Carlton J. Lewis, Park L. Metzger, Daniel B. Neiderlander, and Avery J. Pratt.

Harry I. Kobayashi has been elected president of the General Contractors Association of Hawaii, Herbert G. Van Orden, first vice-president; Charles W. Hume, second vice-president, and Max W. Moody, treasurer. Directors, Fred J. Rudmann, Watson T. Yoshimoto, George E. Freitas, Richard R. Hadano, Edwin M. Kawaguchi, Archer T. Osler and Valentine B. Libbey. Gordon H. Scruton, executive secretary.

The American Water Works Association has granted to Ira P. Macnab, of Halifax, N. S. the George Fuller Warren memorial award for distinguished service in the water supply field. He is chief engineer and manager of the Public Service Commission of Halifax, operating the city's water and sewerage facilities. He is president-elect of the Engineering Institute of Canada, and of the dominion council of the Professional Engineers of Canada.

Samuel Busby is the new executive secretary of the Indiana Society of Professional Engineers. He was secretary of the Indiana Public Service Commission from 1944 to 1949. He also served during that same period as secretary of the Governor's Recodification Committee and the Indiana Reciprocity Committee.

Leslie E. Little, of Bucksport, was elected president of the Maine Association of Engineers to succeed Edwin T. McDowell. Other officers: Ford Harris of Lewiston, vice-president; director, Elwin Howard of Rumford; secretary-treasurer, Willis Pratt of Orono.

Lewis A. Parsons is the new president of the Engineers Club of San Francisco. He succeeds L. H. Anderson. Other officers: Secretary, Robert D. Dewell; treasurer, D. A. Stivers, Jr.; directors, Keith L. Davey, Harvey V. Eastling, and LeRoy F. Krusi.

Officers of the Western Concrete Pipe Association are H. W. Chutter, Fresno, president; Fred M. Linn, Modesto, Calif., vice-president; and William S. Rogers, Madera, Calif., secretary-treasurer.

W. B. Goodwyn of Montgomery, Ala. is president of the Alabama Road Builders' Association. Other officers, T. F. Holbart, Birmingham, vice-president; W. A. McWarters, Montgomery, secretary; W. R. J. Dunn, Birmingham treasurer.

The Southwest chapter of the Wisconsin Society of Professional Engineers elected Zenno Gorder, Monroe, president; Lynn Basby, Madison, vice-president; Willard Warzyn, Madison, secretary-treasurer; Directors elected are—Page Johnson and Ken Green, Madison and Joseph Lustig, Jonesville.

Toledo, Ohio, Building Congress has elected Fred Hausman president; Oran C. Mienka, first vice-president; Ray Gibboney, second vice-president; and Clarence F. Hammer was renamed secretary-treasurer.

CALENDAR

Building Officials Conference of America, King Edward Hotel, Toronto, Ont., May 14-17.

Society for Experimental Stress Analysis, spring meeting, National Bureau of Standards, Washington, D. C., May 16-18.

Pacific Northwest Sewage Works Assn., Hotel Vancouver, Vancouver, B. C., May 17-19.

Pacific Northwest Section, AWWA, Hotel Vancouver, Vancouver, B. C., May 17-19.

Pennsylvania Society of Professional Engineers, Americus Hotel, Allentown, Pa., May 18-19.

Canadian Section, AWWA, Royal Alexandria Hotel, Winnipeg, Man., May 21-23.

Conference on Industrial and Plant Protection, N. Y. University, Washington Square Center, N. Y. City, May 22-24.

New England and New York Sewage Works Associations, spring meeting, Hotel Kimball, Springfield, Mass., June 7-8.

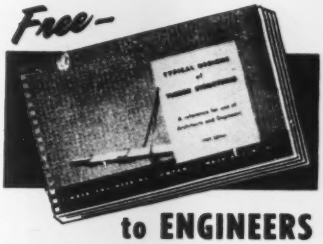
President's Highway Safety Conference, Washington, D. C., week of June 10.

American Society of Civil Engineers, summer convention, Brown Hotel, Louisville, Ky., June 13-15.

National Society of Professional Engineers, annual meeting, Nicolet Hotel, Minneapolis, Minn., June 13-16.

American Congress on Surveying and Mapping, annual meeting Hotel Shoreham, Washington, D. C., June 18-20.

American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City, N. J., June 18-22.



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Heavy Hauling Jobs
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It's a "natural" for small and large contractors and haulers.

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It packs powerful advantages in a multi-purpose single unit.

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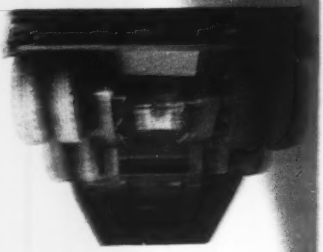

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Rogers I Beam or Girder Trailer

OBITUARY

Lawrence A. Cline, 50, vice-president of United Concrete Pipe Corp., Baldwin Park, Calif., died recently in Los Angeles. During World War II, he was officer in charge of a naval construction battalion in the Aleutian Islands and later of a naval construction regiment in the Okinawa campaign. He was a graduate of the University of Illinois.

Milton W. Morris, 46, executive vice-president of Associated Home Builders of San Francisco, died recently. He had been with the association since 1937.

Wesley P. Cottingham, 79, a civil engineer graduate of Texas A. & M. College, died in Houston, Tex., April 14. His early work was with the Southern Pacific Railroad and in 1905 he established the Texas Blue Print Supply Company.

Fred A. Luber, 55, chief of the architectural engineering department of the Wisconsin Electric Power Co. of Milwaukee, died April 18. He started with the firm in 1910 as a draftsman. He was in charge of the design and construction of company buildings, including the recently completed Port Washington power plant. Mr. Luber was president of the Milwaukee Harbors and Rivers Association, chairman of the Milwaukee Building Code committee, and chairman of the Wisconsin State Building Code committee.

A. L. Meger, for ten years highway engineer of Pipestone County, Minn., died March 26.

Henry C. Morehouse, 85, former city engineer of Denver, Colo., died at Santa Monica, Calif., April 12. He had retired 20 years ago.

James C. Kennedy, 57, retired civil engineer, died in New York City April 24. He was a Princeton graduate and formerly was a consulting engineer with Coverdale & Colpitts.

Hiram N. Crichton, 62, a civilian engineer in the U. S. Engineers Corps, and superintendent of the Cape Cod Canal, died at Buzzards Bay, Mass., April 21. He was graduated from the Massachusetts Institute of Technology in 1910 and had been stationed at Buzzards Bay for the last three years, following wartime duty in the Caribbean area. Mr. Crichton had many years' service in canal, bridge, river and harbor construction.

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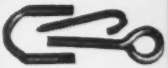

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Wire Rope Clips: Hi-Center saddles, extra-strength U Bolts.

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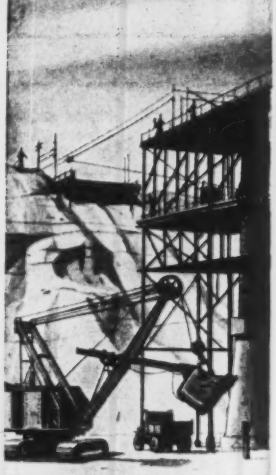

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ONLY CARLON combines the inherent advantages of plastic with the desirable characteristics of metallic pipe. This new pipe is guaranteed against rot, rust, and electrolytic corrosion and is impervious to sulphurous waters, alkalies, metallic salts, and corrosive wastes. As a result, CARLON has a projected trouble-free service life many times longer than ordinary pipe. Because of its light weight (1/9th that of steel), CARLON can be installed rapidly without special tools or heavy materials handling equipment.

CARLON PIPE can be used for drinking water, sludge, drainage and irrigation systems, ventilating and cooling lines, hydraulic sluicing, and intake and exhaust piping. It is recommended also for low pressure air lines and exposed or concrete-incased electrical conduit.

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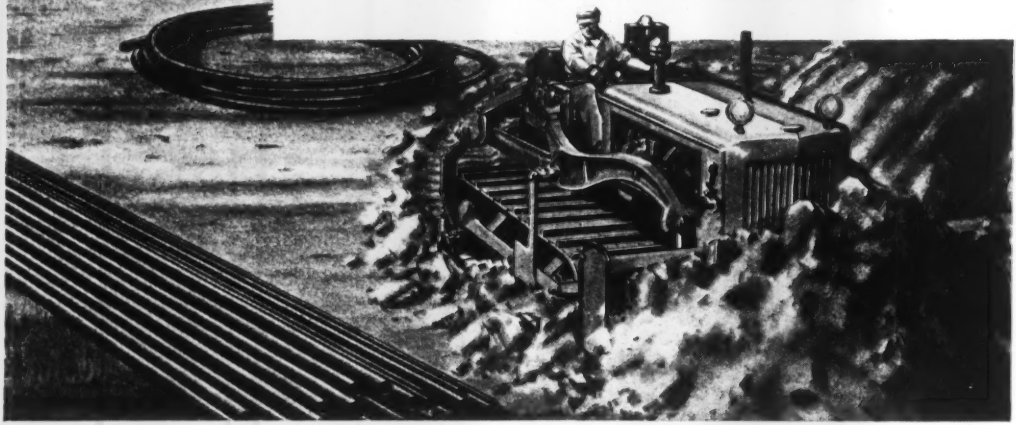

Construction awards drop for April

Engineering construction awards for the month of April fell behind the previous month, but continued to show substantial increases over the comparable period of 1950.

Total of public and private awards for the four-week month was $1,053,434,000, compared to $1,406,456,000 for March (ENR April 5, p. 27). However, compared to the same month a year ago, the 1951 figures showed these increases: Public construction, $494.9 million, up 32% over 1950; private construction, $558 million, up 52% above 1950.

With the April, 1951, figures added, it is to be noted that the cumulative total for the first four months of this year is now $4,997,847,000, as compared to the cumulative total of $3,480,193,000 for the same period of 1950.

Following the war-nurtured trend, biggest contributor to the April total was private industrial construction, which racked up a total of $309.7 million in contracts let. Next heaviest classification was public buildings, residential and other, with a four-week total of $162.8 million. Private residential construction weighed in for the month with $133.3 million, compared to $323.5 million a year ago.

Regionally, the area west of the Mississippi led for the month, with $283.3 million contracts let. The Far West came second, with $223.3 million contracts, and New England trailed for behind with $47 million.

Building materials drop, Commerce department says

Production of building materials—which has been decreasing steadily since the August, 1950, high of 192.2, dropped again from January to February, as measured by the U. S. Department of Commerce Index of Production (1939=100).

The index for February stood at 140.9. In January it had been 155.1.

Adjusted for seasonal trends, however, the February production was at 170.8, compared to a similar adjustment that brings January up to 181.6.

The individual components of the index showed decreases all along the line. Lumber production, at 115.3, was 10.1 below January; hardwood flooring was 165.1, compared to 186.8 for January. Brick was listed at 107.1, a drop of 14.9. Cement production fell from 171.1 in January to 149.2 for February.

Production of wire nails was down 20.2, to 118.6 for February; fabricated structural steel was at 129, from January's 147.4; reinforcing bars dropped 13.3 to hit 133.8. Softwood plywood dropped too, from the revised 254.5 for January to 233.2 for February.

Gypsum board production fell 14.6 to 759.1; gypsum lath was 258.6 compared to 263.9 for January; asphalt prepared roofing production was 153 for February, down from January's 184.9, and asphalt siding output was 187.9, compared to 220.4.

Structural clay tile and clay sewer pipe also showed drops.

Labor rejoins board for wage settlements

Exactly two months after they walked out, the major labor organizations walked back into the defense agencies this week. Their return had been a foregone conclusion after President Truman and administration leaders accepted a "compromise" plan outlined by labor men themselves (ENR April 26, p. 24).

In brief, the newly-constituted 18-man board (the previous one had nine members) will have an impartial chairman, and 17 members representing the public, labor, industry; with its powers enlarged to include settlement of labor disputes certified to it by the President.

Labor's representation on the new board will be: Harry Bates, of AFL bricklayers; E. E. Walker, AFL machinists; Emil Rieve, CIO textile workers; J. W. Livingston, CIO auto workers; Joseph C. Bierne, CIO communications workers; W. C. Birthright, AFL barbers. Bates, Walker and Rieve were the men who walked out of the old board.

Administration leaders at midweek, however, were having difficulty finding topflight labor relations experts from industry and the public to serve with

ENGINEERING CONSTRUCTION CONTRACTS REPORTED TO ENGINEERING NEWS-RECORD — APRIL, 1951

Engineering News-Record *reports continental U. S. Construction projects of the following minimum costs — Waterworks, excavation, drainage and irrigation,* $34,000; *other public works,* $60,000; *industrial buildings,* $82,000; *other buildings,* $300,000

Four Weeks — Thousands of Dollars (000 Omitted)

	April, 1951						U. S. Cumulative—Four Months		%	Canada
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1951	1950	Change '50 to '51	April, 1951
Public Works											
Waterworks	111	2,611	2,430	6,284	4,872	1,082	**17,390**	**79,610**	83,615	− 5	7,316
Sewerage	502	3,038	8,453	1,561	6,217	3,893	**23,664**	**105,267**	74,519	+41	2,183
Bridges	314	1,072	4,709	1,805	11,496	1,392	**20,788**	**86,948**	103,345	−16	6,317
Earthwork and waterways	....	3,691	7,695	462	27,694	82,920	**122,392**	**205,663**	128,700	+60	398
Streets and roads	522	3,932	15,367	19,806	31,667	9,924	**81,218**	**314,006**	337,373	− 7	1,912
Public buildings, residential	2,967	1,850	9,767	.....	2,589	3,286	**20,459**	**183,571**	67,788	+171	.....
Other public buildings	9,221	11,869	21,606	74,645	22,952	22,573	**162,866**	**800,955**	552,904	+45	12,868
Unclassified	414	5,237	11,855	1,443	13,174	14,036	**46,159**	**163,746**	118,588	+38	5,002
Total public	**14,051**	**33,300**	**81,812**	**106,006**	**120,661**	**139,106**	**494,936**	**1,939,766**	**1,466,832**	**+32**	**35,996**
Federal government (included in above classifications)	2,862	6,703	24,627	58,646	51,304	85,934	**230,076**	**763,263**	470,908	+62	14,303
Private											
Bridges	.....	.....	.....	500	500	.....	**1,000**	**3,438**	2,483	+38	.....
Industrial buildings	29,032	31,436	45,827	47,646	125,738	37,025	**309,704**	**1,819,194**	354,589	+413	16,831
Com'l. buildings, residential	2,325	75,631	17,269	16,050	11,105	10,896	**133,276**	**648,180**	1,169,706	−45	6,695
Other commercial buildings	2,615	4,889	5,005	9,912	7,288	6,433	**36,142**	**218,883**	323,547	−32	4,301
Unclassified	6,060	.....	19,126	250	23,038	29,902	**78,376**	**368,386**	163,036	+126	375
Total private	**33,032**	**111,956**	**87,227**	**74,358**	**167,669**	**84,256**	**558,498**	**3,058,081**	**2,013,361**	**+52**	**28,202**
Total Engineering Construction:											
Apr., 1951 — 4 weeks	**47,083**	**145,256**	**169,039**	**180,364**	**288,330**	**223,362**	**1,053,434**	.....	.....	.....	**64,198**
Mar., 1951 — 5 weeks	30,456	171,871	312,749	261,266	476,449	153,665	1,406,456	.....	.....	.....	49,725
Apr., 1950 — 4 weeks	47,851	232,436	138,790	98,241	209,521	158,205	885,044	.....	.....	.....	54,203
Four Months — 1951	**140,604**	**906,699**	**1,071,041**	**891,609**	**1,337,110**	**650,784**	.....	**4,997,847**	.....	**+44**	**209,037**
Four Months — 1950	176,009	848,598	505,455	451,251	806,197	692,683	.....	.....	3,480,193	.....	184,974
% Change '50 to '51	−20	+7	+112	+98	+66	−6	.....	.....	.....	.....	+67

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PRESSURE DISTRIBUTOR

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GUNITE
PNEUMATICALLY PLACED CONCRETE
DENSE · DURABLE · HIGH STRENGTH

for

Restoring Disintegrated Concrete
Dam, Dock and Bridge Repairs
Steel Encasement and Fireproofing
Sewer, Water Pipe and Penstock Linings
Stack and Bunker Linings
Wood Pile Casings—Pressure Grouting
Prestressed Tanks and Silos

Get in touch with us for engineering data and estimates

GUNITE CONSTRUCTION CORPORATION
420 LEXINGTON AVE., NEW YORK 17, N.Y.
MURRAY HILL 3-7699

labor under the new chairman, Dr. George W. Taylor, of the University of Pennsylvania.

• **Job ahead**—Once the board is fully organized it will have to start work on two major jobs:

It will decide more than 800 cases, affecting more than 3,000,000 workers, in which approval is being asked of voluntary wage increases above the 10 percent ceiling. It will also have to revise its regulations to serve until Congress amends the Defense Production Act this summer.

Business briefs . . .

• **Industrial building up**—For the twelfth time in 18 weeks, industrial building volume as reported to ENR last week topped other classes of construction. Figure for the week was $80,000,000, making the total in this class for 1951 to date 405% above the comparable period of 1950.

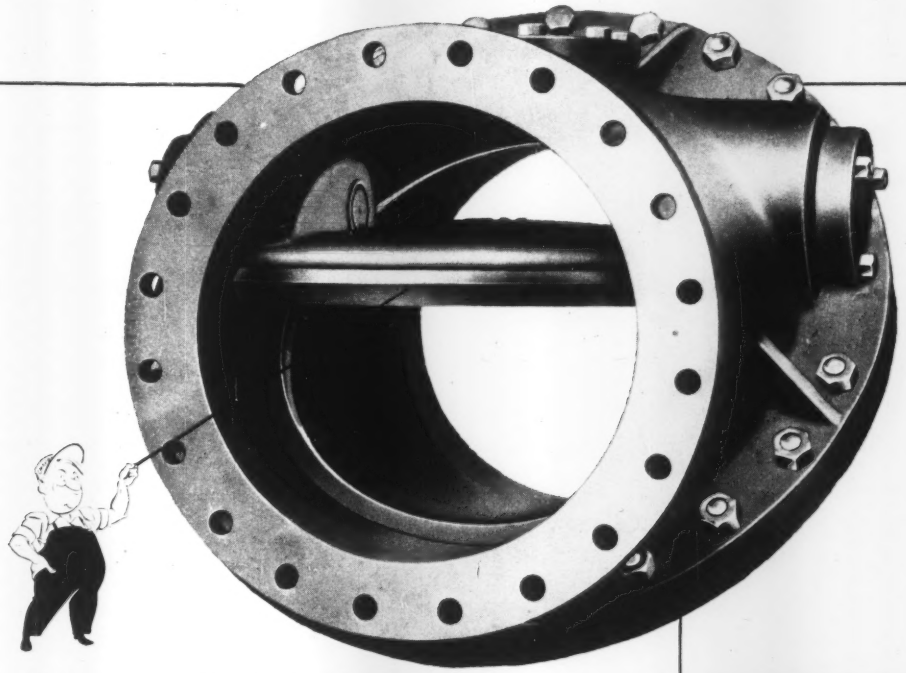
• **Scrap needed**—With scrap supplies at major steel mills declining from over 50 days' supply to an average of 21 days, steel makers have made new appeals to other industry to start scrap flowing to the mills. Building demolition, manufacturing plants, railroads, machinery "graveyards" are particular targets for scrap.

• **Quick writeoff**—The Defense Production Administration granted 915 certificates of necessity authorizing five-year write-off on machinery, equipment and plant during the period Oct. 30, 1950, through April 6, 1951. Total cost of the new facilities proposed for construction exceeds $4.1 billion, and heaviest concentration of the new plants will be in the already well-developed areas of New York, New Jersey and Pennsylvania.

• **Help for N. Y. schools**—The New York City Board of Education has been assured that the federal government will "do everything possible" to expedite the city's school construction program. C. J. Bensley, chairman of the board's committee on buildings and sites, said critical materials—including 4,500 tons of steel—will be released soon to complete seven new schools already under construction.

• **Uphold contract award**—Geauga County (Ohio) Common Pleas Court has upheld the action of the Warren, Ohio, Board of Control, in awarding a $301,356 sewer contract to Victor Shutrump, Youngstown, instead of low bidder on the job. A taxpayer's suit demanded the contract be awarded the low bidder. The court agreed the board had acted in the best interest of citizens, on a showing that Shutrump could complete the job faster with better equipment than the low bidder.

Stop Expensive Slamming With the Cushioned Closing of CHAPMAN TILTING DISC Check Valves

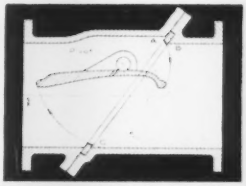


Those words — *cushioned closing* — best describe the action of this unique check valve. The tilting disc works with the stream—opens easily, closes quickly, *yet quietly.* There's no slamming — no resultant destructive stresses on the pipeline.

As a result of this smooth, *cushioned action*, maintenance costs are at a minimum and savings of from 65% to 80% in head losses can be obtained over conventional-type check valves.

Send today for the bulletin describing this unusual valve.

THE CHAPMAN VALVE MFG. CO.
INDIAN ORCHARD, MASSACHUSETTS



Cross-section of the Chapman Tilting Disc Check Valve illustrating the way that the balanced disc is supported on the pivot, with arrows showing the travel of the disc. A feature of the design is that the disc seat lifts away from the body seat when opening, and drops into contact when closing, with no sliding or wearing of the seats.

MEETS *all* OPERATING CONDITIONS

Not only does the CP-59 Sinker outperform any other drill in the 55-pound class, but it can be used for (1) plain dry, (2) blower dry, (3) plain wet, or (4) air-water operation.

This is made possible by its 4-in-1 backhead, which permits quick, inexpensive change-overs from one type of operation to another.

Its remarkably high drilling speed, exceptionally strong rotation, unsurpassed hole cleaning, excellent riding qualities—all make for fast, efficient, economical performance.

Maintenance is low because of such features as a replaceable bronze chuck rotation nut to protect piston splines from scoring, and a replaceable bronze bushing liner to make it easy to maintain piston alignment and full cushioning.

Get in touch with your nearest CP office for a demonstration of the CP-59, or write for a copy of SP-3009.

CHICAGO PNEUMATIC TOOL COMPANY

General Offices: 8 East 44th Street, New York 17, N. Y.

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
June Materials, and Labor Prices will appear in June 7, 1951 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block		CONCRETE Ready Mixed 1:2:4, over 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand gray	Lt. wgt. agg.	per c.y.
Atlanta	$3.63	$3.35	3.10	$2.00	$2.00	$1.75	$2.10	$2.10	$1.65	$1.85	$0.186	$0.186	$11.00
Baltimore	3.68	3.37	3.33	2.50‡a	2.50‡a	2.00‡a	2.70‡a	2.80‡a	2.60‡a	2.55‡a	.17	.17a	10.80
Birmingham	3.11	2.68	2.82c	2.24n	2.24n	1.94n	2.50	2.50	1.10	1.30	.165	.165	7.85
Boston	3.96	3.65	3.58	2.50a		2.50a	1.50a	1.60a	....	....	.206	.22a	11.50k
Chicago	3.29	2.99	3.94	3.00‡b	3.00‡b	3.40‡b	3.00‡b	3.00‡b	2.00‡	2.00‡	.22	.22b	11.50
Cincinnati	3.46	3.18	3.16	2.00‡e	2.00‡e	2.05‡e	2.35‡h	2.35‡h	....	....	.21	.225a	10.95f
Cleveland	N. A. in C. L.		....	2.05ef	1.85f	1.65	3.65a	3.65a	2.85‡	2.85‡	....	.23	13.00g
Dallas	2.95	2.65	2.70	2.15	2.15	1.84	2.22	2.38	....	....	.125e	.215	9.30
Denver	3.89	3.64	3.89	1.85	2.00	1.20	....	....	....	....	.22	.255a	10.00
Detroit	3.25f	2.98	3.04	4.00‡b	4.00‡b	3.50‡b	4.00‡	4.00‡	4.00‡	4.00‡	.19	.20a	10.50f
Kansas City	3.30	3.03	3.15	1.90‡	1.90‡	1.50a	1.90‡a	1.90‡a	....	....	.23ag	.23c	10.95h
Los Angeles	4.00a	3.52a	4.72	2.10a	2.20a	1.95a	2.08a	2.08a	....	....	.11f	.225	10.50hm
Minneapolis	3.68ed	3.37ed	3.33	2.40‡ag	2.40‡ag	1.45‡ag	2.50‡ag	2.50‡ag	....	....	.23ik	....	11.25fi
Montreal	2.66ac	2.51cc	....	2.50	2.50	1.90i	.85ijp	1.50ij	....	....	....	.16a	10.50ek
New Orleans	3.20e	2.80e	3.18	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.90
New York	3.78	3.48	3.35	2.35bk	2.50bk	1.60bk	2.50bl	2.50bl	....	....	....	....	11.40an
Philadelphia	3.38/3.68‡	3.07/3.37‡	3.38‡	2.65‡	2.75‡	2.15‡	2.10‡	2.15‡	1.75	1.65	.22/.25	....	11.50
Pittsburgh	3.32	3.04	....	2.15‡	2.15‡	2.10‡	2.60‡	2.60‡	2.15	2.15	.23d	.23d	11.00
St. Louis	3.28/3.38b	2.94/3.10b	3.22	2.70am	2.70am	2.30/2.70am	1.70j	1.70j	1.25	1.25	.215	.27cs	10.40
San Francisco	3.35	2.95	....	1.86	1.86	1.96	1.96	....	....	....	....	.26c	10.75c
Seattle	3.75a	3.25a	3.85	3.00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	....	....	.24j	.3325y	10.95j

‡ Delivered. * Prices incl. dealers comm. except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers, comm. not incl. *d* Dealers sell only LCL. *e* Plus switching charges. *f* Paying up to $3.80 for cement brought in from outside sources. *g* Warehouse pickup.
SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ½". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots asd. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars. *p* New price not available as we go to press.
CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5½ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash. *j* Less 1% for cash. *k* 8x8x18.
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10–100 cu. brackets. *e* 2,000 lb. coner. *f* 2500 lb. comp. *g* Aver. haul 7–9 mi. zone. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk
Richard City, Tenn.	$2.60†	Buffington, Ind.	$2.55†	Steelton, Minn.	$2.65†	Muskegon, Mich.	$2.70†	Toledo, O.	$2.60†
Clinchfield, Ga.	2.60†	Independence, Kan.	2.50†	Leeds, Ala.	2.45†	Saginaw, Mich.	2.60†	Milwaukee, Wis.	2.75†
Kingsport, Tenn.	2.60†	Hannibal, Mo.	2.55†	Duluth, Minn.	2.65†	Wyandotte, Mich.	2.60†	Green Bay, Wis.	2.75†
West Des Moines, Iowa	2.65†	Northampton, Pa.	2.60†	Hudson, N. Y.	2.60†	Buffalo, N. Y.	2.60†	Iron ton, O.	2.60†
Nazareth, Pa.	2.60†	Universal, Pa.	2.65†	Alpena, Mich.	2.50†	Oswego, N. Y.	2.75†	Montreal City	2.31
Bath, Pa.	2.60†	Waco, Tex. (+ 10¢ tax)	2.50†	Detroit, Mich.	2.60†	Cleveland, O.	2.60†	W. Winfield, Pa.	2.65†

†*Prices to hold for second quarter of* 1951.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	PAVING ASPHALT Per ton, less than 80 penetration Tank car	Drums	ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration Tank car	Drums	CUTBACK ASPHALT Per ton Tank car	Drums	ROAD OIL Per gal. Tank car	ASPHALT EMULSION (Quick-breaking) Per gal. Tank car	Drums
Atlanta	$73.00	$35.00	$2.25	....	....	....	....	....	....	....	....	....
Baltimore	150.00‡	57.70‡	....	$22.00	....	$21.00e	$0.15	$.09ve	$.17e	$.09i	$.09	$0.12
Birmingham	.....	45.50i	.....	....	....	....	....	....	....	....	....	....
Boston	.....	.....	.....	24.50a	$35.50a	22.00e	35.50e	.105ae	.22	.09ai	.095	.22
Chicago	155.00‡	90.00‡b	4.50/4.60‡f	20.25b	30.25b	19.25bv	29.25bv	.0875bw	.16w	.07ib	.....	.....
Cincinnati	.....	.....	.....	....	....	....	....	....	....	....	....	....
Cleveland	180.00	55.00d	4.83g	26.50	38.50	26.50v	38.50v	.12w	.24w	.115	.14	28
Dallas	e	40.00	e	23.95	42.99	.1012	.1898	26.99	47.77	.0987	.1062	.1423
Denver	.....	48.00	.....	.....	....	....	....	....	....	....	....	....
Detroit	.....	92.00	.....	26.25	....	9.30v	.....	.1162w	.....	.092	.....	.215
Kansas City	e	e	e	18.55el	17.55c	.....	.....	.0725cw	.....	.0635e	.....	.....
Los Angeles	e	.....	e	15.50dmz	....	15.50dvz	.....	17.00dz	.....	16.00dz	.0825j	.1525j
Minneapolis	.....	.....	2.83h	26.50	36.50	24.50v	35.50v	25.00	35.50	.095	.1225	.2225
Montreal	137.00	e	e	27.00n	36.65n	16.70nu	18.70nu	16.30nu	18.30nu	15.20ns	.184ns	.225ns
New Orleans	.....	.....	.....	17.50e	.....o	17.50ev	.....o	.08ew	.....o	.0882	.085	.....
New York	.....	.....	3.10f	25.50	28.02q	24.50v	44.04qv	.1040w	.1819qw	.1040	.1046	.1847q
Philadelphia	175.00	110.00	4.06	22.00	....	22.00v	.....	.095w	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	22.00	36.00	.10	.20	27.00	39.00	.095	.09	.20
St. Louis	.....	.....	.....	19.25f	....	.1698	.....	.0865 .089w	.....	.15	.....	.....
San Francisco	.....	63.73c	.....	17.00q	32.50qp	17.50qkv	.....	19.00q	.....	17.50v	.085	.145
Seattle	.....	.....	.....	17.00A	37.50A	16.75hv	.....	19.50A	23.50Ar	18.50Av	.09A	.10A

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2½ x 8½ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6¢ treat. *g* 3". *h* 8¢ treat. *i* 3 x 3½ x 8½.
ASPHALTS: *a* Price at plant, Everett, Mass. *b* F.o.b. refinery, Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* Bulk refinery. *j* F.o.b. refinery, Englewood, Calif. *k* 70–110 penetr. *l* Less than 100 penetr. *m* 40–80 penetr. *n* Tax incl. *o* Drums not avail. *p* Shipped in steel bbl. *q* Used drums. *r* In customer's drums. *s* Shipped in drums, per drum. *u* Per 100 gal. *v* Per ton. *w* Per gal. *z* Also tank trucks.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES	PLATE CARBON STEEL	REINF BARS billet	RIVETS ¾-in. structural	SHEET PILING	STEEL RAILS Per Net Ton			TRACK SUPPLIES			
					Base	Standard	Light	Re-rolled	Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$3.65	$3.70	$3.70	$7.85		$72.00	$80.00	Not	$4.70	$6.15	$4.50	....
Chicago Area	3.65	3.70	3.70	7.85	$4.45	72.00	80.00	avail-	4.70	6.15	4.50	....
Pittsburgh Area	3.65	3.70	3.70	7.85	4.45	72.00	80.00	able	4.70	6.15	4.50	....
Buffalo Area	3.70	3.70	3.70	7.75	4.45	72.00	80.00	....	4.70	6.15	4.50	$9.85
Cleveland	....	....	3.70	7.85	....	....	....	....	....	....	....	9.85
Youngstown Area	....	....	3.70	....	....	....	....	....	....	6.15	....	....
Geneva	3.65	3.70	....	....	....	....	....	....	....	....	....	....
Los Angeles	....	....	4.40	....	....	....	....	....	....	6.15	....	....
Pueblo	3.65	3.70	3.70	....	....	72.00	80.00	....	4.70	6.15	4.50	9.85

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS 5 tons to carload lot *b* New billet	Rail steel	Per 100 lb., base price *u* Add switch	$/cwt for Del.	EXPANDED METAL LATH *k* Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING *d* Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No 6 & 6 wires
Atlanta	$6.23	$6.05	$6.05	$.025	$.10	$31.50	$31.50			
Baltimore	6.54	5.49*l*	....	....	.10	42.00	45.00			
Birmingham	5.70	5.75	5.75	.05	.15	47.00*p*	52.00*p*			
Boston	6.40*k*	6.19*k*	6.19*ke*	....	.10/.15	39.00	45.00			
Chicago	5.70	4.95*ff*	4.95*ff*	.0625	....	34.50‡	38.50‡			
Cincinnati	6.24*kr*	5.84*r*	....	....	....	38.50*szee*	41.50*szee*			
Cleveland	5.82	4.81*v*	....	....	.10	37.00‡	40.00‡			
Dallas	8.85	7.00	7.00	....	....	49.00	52.00			
Denver	7.20	7.10*c*	....	....	....	60.00*s*	72.00*s*			
Detroit	6.09	5.59*n*	....	....	.10	53.00	58.00			
Kansas City	6.30*nn*	5.90*ff*	5.90*ff*	....	....	38.00	40.50			
Los Angeles	6.45/*kk*	6.15*g*	....	....	.15	48.00	54.00*kk*			
Minneapolis	6.16*hhq*	7.32*ll*	7.32*ll*	....	.15	37.00	40.00			
Montreal	6.75*z*	4.75*x*	4.75*y*	....	....	44.10*h*	46.80*h*			
New Orleans	....	5.55*ok*	....	.05	.10	40.00	40.00			
New York	6.30*r*	6.25	6.25	....	.30	38.50*nt*	45.00*nt*			
Philadelphia	5.90*k*	5.95*k*	....	....	....	38.00‡	42.00‡			
Pittsburgh	5.40-5.60	5.40-5.60	....	....	.10	34.00	36.00			
St. Louis	6.03	5.34*c*	5.34*c*	....	....	47.00*aa*	53.00*aa*			
San Francisco	7.15*a*	5.75*l*	....	....	.15	40.50	43.50			
Seattle	4.05*e*	5.35*el*	....	....	....	57.00*mm*	47.00*mmr*			

A.P.M.* Joliet, Illinois, Donora, Penn. $2.66
F.o.b. Mill: Monessen, Penn. $2.76

A.P.M.* Joliet, Illinois, Donora, Penn. $1.87
F.o.b. Mill: Monessen, Penn. $1.93

A.P.M.* Joliet, Illinois, Donora, Penn. $2.79
F.o.b. Mill: Monessen, Penn. $2.89

* At Producing Mill.

‡ Delivered. *a* 1-5 tons, add 35¢. *b* Less than 1 ton, add 50¢. *c* 20 tons or over base. *d* Mill price plus freight. *e* F.o.b. plant. *f* Includes delivery in free-delivery zone. *g* 10,000 to 39,999 lbs. *h* List price. Dominion tax exempt. Provincial and Municipal tax extra. *i* Plus Dominion, Provincial and Municipal sales tax. *j* Price per ton. *k* F.o.b. city. *l* Intermediate and hard grade, new billet. *m* Per sq.yd. *n* 5–10 tons. *o* 5 to 15 tons base. *p* Del. of 500 sq. yd. or more. *q* Std. ribbed, 4 lb. per sq. yd. *r* 5 tons or over. *s* LCL. *t* Asphalt coated. *u* Note: Revised size extra — 1 in., 1¼ in. 1½ in., 10¢; 2 in., ¼ in., 15¢; ¾ in., 25¢; ½ in., 50¢; ¾ in. 80¢; 1 in. $1.90. *v* 20 tons. Straight. *w* Copper bearing. *x* 2.5 lb. per sq. yd. *y* $0.0083 transportation tax included. *z* Copper alloy. *aa* Delivered truck to job. Contractor to do unloading. *dd* F.o.b. works. *ee* F.o.b. cars. *ff* Carload lots. *gg* Including sales. *hh* 10,000-19,999 lbs. *ii* Rolled at Geneva mill. 400-999 lbs. *kk* 4" ribbed. *ll* 5 to 8 tons, f.o.b. city. *mm* 2% off for cash. *nn* 1-5 tons. *tt* 10 tons to CL. *aa* 36 was for 10 tons and over.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in. *a*	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	24 in.
Atlanta	$99.00	$0.43	$0.67	$3.39	$7.00	$114.00	$140.00	$0.45	$2.00
Baltimore	100.00	.59	1.03*95*	4.26	11.27*5*	178.20	274.80	.90	2.45
Birmingham	94.00	.42	.75	2.99	....	210.00‡	375.00‡	1.25*m*	2.75*m*
Boston	113.00	.53*2uex*	1.02*6uxy*	4.41*uxy*	11.68*5uxy*	187.80*v*	289.20*v*	1.55*mq*	3.80*mq*
Chicago	107.00	.65	1.25	5.10	13.50	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	.56*7*	1.09*45*	4.45*5*	11.68*5*	154.80	239.70	.75*m*	2.80*m*
Cleveland	108.00	.46*2r*	.89*1r*	3.69*x*	10.04*5x*	147.00	229.00	.80*m*	3.00*m*
Dallas	107.00	.43*6*	.82*2*	3.23*4*	9.17	....	....	.49	1.60
Denver	115.00	.43*dd*	.74*dd*	3.18*dd*	....	....	....	.74*m*	2.50*m*
Detroit	108.00	.70	1.35	5.35	14.40	240.00*m*	360.00*m*	.80	3.20
Kansas City	106.00	.50	.88	3.50	....	216.70	....	.70	3.00*g*
Los Angeles	122.00	.54*l*	1.07*l*	5.24*l*	13.06*l*	228.20	348.90	.85	2.40*ff*
Minneapolis	102.86-112.00	.66*ima*	1.20*ma*	4.85*ma*	....	....	....	1.35*5h*	3.85*h*
Montreal	100.00	.77*z*	1.35*z*	4.47*z*	7.23*ez*	....	....	72.00*kaa*	218.00*khaa*
New Orleans	101.50	.496	.90	5.00	....	251.00*6b*	441.00*6b*	.65	2.29
New York	111.00	.70	1.19	4.77	12.71	....	....	1.05	2.20
Philadelphia	110.00	.65	1.25	4.95	12.65	300.00‡	350.00‡	1.35*5r*	3.75*5*
Pittsburgh	109.00	.586*m*	.752*m*	2.83*m*	7.622*m*	147.50	230.00	1.05*h*	2.50*h*
St. Louis	103.00	.51	.93	3.65	8.50	....	....	1.35*il*	3.00*hl*
San Francisco	122.00	.61*d*	1.20*d*	5.03*d*	12.57*d*	240.00*dll*	400.00*dll*	.95	3.20
Seattle	124.00	.54*h*	.916	....	....	150.00*e*	....	.86*ee*	2.64*ee*

‡ Delivered. *a* Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A $5 per ton additional. 4 in., $7 per ton additional; 30 in. and larger, usually, $1 per ton less. *b* Extra strength ASTM C 200-41T. *c* 4-in., $90. *d* ASB61-A. *e* 30-in. *f* Culvert pipe, Reinforced, ASTM C 76-41. *g* Reinforced, ASTM C75-41. *h* Reinforced, ASTM C76-37. *i* Centrispun. *k* Per 100 ft. *l* f.o.b. plant. *m* Truck delivery. *n* Listed price is based on LCL (no minimum). *p* Less than 5 tons, per price per ft. *r* Within switching limits. *u* ASTM C13-40. *z* C.L. f.o.b. origin, freight allowed. *x* 2 ft. lengths. *y* 3 ft. lengths. *z* CESA A 60-1941 specifications used. *aa* No. standard specifications in Can. *bb* Freight allowed to destination in city? *ee* Truck loads; f.o.b. plant, Newton. *dd* LCL, delivered f.o.b. truck. *ee* 1% off for cash. *ff* 21".

*WROUGHT STEEL PIPE—

(Full standard weight)

Mill	3½ to 6 in. Lap Weld Black %	3½ to 6 in. Lap Weld Galv. %	7 in. Butt Weld Black %	7 in. Butt Weld Galv. %	8 in. Butt Weld Black %	8 in. Butt Weld Galv. %	9 in. Butt Weld Black %	9 in. Butt Weld Galv. %	10 in. Butt Weld Black %	10 in. Butt Weld Galv. %	
Lorain, Ohio	35.5	15.5	38.5	17.5	38.5	17.5	38.5	17.5	38.5	17.5	*a* 3½ to 4 in.
Aliquippa, Pa.	36.5	15.5	38.5	17.5	38.5	17.5	38.5	17.5	38.5	17.5	*b* Continuous
Sparrows Pt., Md.	33.5	13.5	38.5	18.5	38.5	18.5	38.5	18.5	38.5	18.5	
Benwood, W. Va.	38.5	18.5	38.5	18.5	38.5	18.5	38.5	18.5	38.5	18.5	
Youngstown, O.	35.5	15.5	38.5	18.5	38.5	18.5	38.5	18.5	38.5	18.5	
Indiana Harbor, Ind.	33.5	13.5	38.5	18.5	38.5	18.5	38.5	18.5	38.5	18.5	
Benwood, W. Va.	43.5	24.0	43.5	24.0	43.5	24.0	43.5	24.0	43.5	24.0	
Sharon, Pa.	43.5	24.0	43.5	24.0	43.5	24.0	43.5	24.0	43.5	24.0	
Wheatland, Pa.	43.5	24.0	43.5	24.0	43.5	24.0	43.5	24.0	43.5	24.0	
Etna, Pa.	43.5	24.0	43.5	24.0	43.5	24.0	43.5	24.0	43.5	24.0	
Fontana, Calif.	32.0	18.5	32.0	18.5	32.0	18.5	32.0	18.5	32.0	18.5	

2½, 3 & 3½ in. Butt Weld Black % | 2½, 3 & 3½ in. Butt Weld Galv. % | 4 in. Butt Weld Black % | 4 in. Butt Weld Galv. % | 5 in. Butt Weld Black % | 5 in. Butt Weld Galv. % | 6 in. Butt Weld Black % | 6 in. Butt Weld Galv. % | |
|---|---|---|---|---|---|---|---|---|---|
| 43.5 | 22.0 | 43.5 | 22.0 | 43.5 | 22.0 | 43.5 | 22.0 | |
| 43.5 | 22.5 | 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | |
| 41.5 | 22.0 | 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | |
| 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | |
| 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | |
| 42.5 | 23.5 | 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | |
| 43.5 | 22.5 | 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | |
| 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | |
| 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | |
| 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | |
| 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | |
| 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | |
| 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | |
| 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | |
| 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | |
| 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | 43.5 | 24.0 | |

a 3½ to 4 in. *b* Continuous

* WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt Weld:* ¼ in., 5½¢; ⅜ in., 6¢; ½ in., 6¢; ¾ in., 8½¢; 1 in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld:* 3½ in., 92¢; 4 in., $1.09. 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft. same as wrought steelpipe. Discount for Pittsburgh base. *Butt Weld* — 1 in. and 1¼ in. black, + 20.0, galv. + 48.0; 1¼ in. black, + 14.0 galv. + 44.5; 2 in. black, 4 galv. + 34.5. *Lap Weld* — 2½ in. to 3½ in. black + 20.5, galv. + 47.5; 4½ in. to 8 in. black + 17.5, galv. + 43.0. Freight rates to destination to be added to name delivered price.

† Threaded and coupled.

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face) *All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1 Lengths up to 20 ft.* (*Prices in italics*)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh
Atlanta	† $75 00	$78 00	$69 50	$69 50	$74 50	$78 00	$77 50	.....	.....
Baltimore	* 91 50	94 00	79 50	85 00	85 00	90 00	95 00	.....	.....
	112 50g	*112 50g*	*112 50g*	*112 50g*	*112 50g*	*112 50g*	*116 50*	*$116 50*	*$116 50*
Birmingham	† 83 00	83 00	70 00	80 00	83 00	85 00	95 00	.....	.....
	85 00	*85 00*	*75 00*	*80 00*	*80 00*	*79 00*	*85 00*	*85 00*	*85 00*
Boston	* 99 00*a*	106 00*a*	99 00*a*	100 00*a*	104 00*a*	105 00*a*	.....	.....	.....
	3 96 00	*99 00*	*110 00*	*110 00*	*110 00*	*110 00*	*116 00*	*116 00*	*116 00*
Chicago	**106 00	108 00	95 00	98 00	98 00	106 00	110 00	.....	.....
	111 00	*111 00*	*115 00*	*112 00*	*112 00*	*112 00*	*115 00*	*115 00*	*115 00*
Cincinnati	* 104 50	106 70	93 50	98 00	105 00	105 00	121 00	.....	.....
	135 50	*137 70*	*125 50*	*135 50*	*131 00*	*131 00*	*137 50*	*143 00*	*143 00*
Cleveland	** 97 00	99 00	95 00	97 00	99 00	105 00	*130 00*	*130 00*	*130 00*
Dallas	*k*† 78 00	80 00	69 00	58 00	59 00	59 00	98 00	.....	.....
Denver	* *Not in stock*		*143 00*	*134 00*	*135 00*	*135 00*	*137 00*	*156 00*	*156 00*
Detroit	‡ 106 00	109 00	103 00	108 00	110 00	114 00	.....	.....	.....
	108 00	*104 00*	*105 00*	*105 50*	*104 50*	*108 25*	*120 00*	*120 00*	*120 00*
Kansas City	* 125 00	125 00	125 00	125 00	125 00	125 00	.....	.....	.....
	125 00	*125 00*	*125 00*	*125 00*	*125 00*	*125 00*	*145 00*	*155 00*	*155 00*
Los Angeles	*l* 105 00	105 00	103 00	103 00	103 00	103 00	*120 00*	*130 00*	*120 00*
Minneapolis	*#* 130 00	130 00	130 00	130 00	130 00	130 00	*150 00*	*150 00*	*150 00*
Montreal	*ab* 92 00	98 00	93 00	95 00	107 00	109 00	.....	.....	.....
	175 00	*175 00*	*175 00*	*175 00*	*175 00*	*175 00*	*140 75*	.....	.....
New Orleans	4 130 00	135 00	120 00	125 00	120 00	140 00	135 00	.....	.....
New York	‡ 109/112	112/115	105 115	115 120	120 125	125 130	150 160	.....	.....
			Range from $120.00 to $125.00				*155/150*	*145/150*	*145/150*
New York	** 91 00	93 00	78 00	90 00	93 00	95 00	120 00	.....	.....
	105 00	*105 00*	*112 00*	*112 00*	*112 00*	*112 00*	*115 00*	*125 00*	*125 00*
Philadelphia			**Range from $117.00 to $127.00**				117 127	.....	.....
			Range from $130.00 to $140.00				*130/140*	*140/150*	*140/150*
Pittsburgh	†		**Range from $85.00 to $90.00**			90 100	90/105	.....	.....
			Range from $95.00 to $105.00			*95 105*	*105/120*	*140/150*	*140/150*
St. Louis	*c* 124 50	126 50	110 75*d*	120 50	125 00*e*	135 00*d*	.....	.....	.....
	.....	.....	*136 75i*	*136 25e*	*136 25e*	*155 00e*	*152 50e*	*164 50*	*164 50*
San Francisco	*A*† 75/80	75/80	75 80	75 79	75 79	74/78	75 78	77 82	77 82
Seattle	† *82 50g*	*82 50g*	*82 50g*	*82 50g*	*82 50g*	*82 50g*	*82 50g*	*82 50g*	*82 50g*

	LONG LEAF Y. P. Merchantable grade up to 20 ft.		PLYWOOD Rail freight increment (See note for base price)	
	2x12 Rgh	12x12 Rgh	3/8"	1/4"
Atlanta			$22 32	$27 24
Baltimore	$152 00	$152 00	22 86	27 90
Birmingham	115 00	130 00	21 78	26 58
Boston	.....	.....	22 86	27 90
Chicago	140 00	140 00	18 72	22 80
Cincinnati	154 00	154 00	21 78	26 58
Cleveland			22 20	27 12
Dallas	108 00	98 00	18 72	22 80
Denver	.....	.....	13 92	16 98
Detroit	125 00	.....	21 78	26 58
Kansas City	.....	.....	16 56	20 16
Los Angeles	.....	.....	13 38*ab*	16 26*ab*
Minneapolis	.....	.....	16 56	20 16
Montreal	.....	.....	.....	.....
New Orleans	180 00	200 00	18 72	22 80
New York	210 240*f*	210 240*f*	22 86	27 90
	.....	.....	.....	.....
New York	190 200	190 200	22 86	27 90
	.....	.....	.....	.....
Philadelphia	95 100	110 120	22 56	27 48
	.....	.....	.....	.....
St. Louis	.....	.....	18 72	22 80
San Francisco	.....	.....	10 08*a*	12 30*a*
Seattle	.....	.....	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. *r* Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd. 4. Retail, truckload.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8–12 ft. lengths. *e* 8–16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common. *h* 8 ft. lengths. *i* No. 3 common *k* Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail $12.00 by truck to yard with surfaced stock $2.00 to $3.00 less.

PLYWOOD: Special concrete form grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on 1", $204.00; on 1", $231.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 50,000 lb. minimum. * Freight rate increase of 6¢ per cwt., not included in these figures.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS Discounts from jobbers list, Feb. 1, 1950*a* Single or Double Thickness A quality	B quality	EXPLOSIVES Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
Atlanta	76%*e*	76%*e*	$0.2275
Baltimore	70–10%	78–10%	.2275
Birmingham	83%	83%	.1750
Boston	79–10%	79–10%	.2275
Chicago	78%*f*	78%*f*	.2275
Cincinnati	78%	78%	.2275
Cleveland	78–10–10%*f*	78–10–10–10%*f*	.2675
Dallas	75%	75%	.2350
Denver	81–5%	81–5%	.2325
Detroit	78–10–10%	78–10–10%	.2275
Kansas City	80–10–10%	80–10–10%	.2325
Los Angeles	75%	80%	.23
Minneapolis	78–10%	78–10%	.2325
Montreal	40–5%*bc*	40–10–5%*bc*	20.00*hi*
New Orleans	78%	78%	.2325
New York	82%*f*	82%*f*	.38*g*
Philadelphia	76%*f*	78%*f*	.2275
Pittsburgh	82%	82%	.20
St. Louis	70–10%*e*	70–10%*e*	.2325
San Francisco	70%	76%	.2275
Seattle	52%*e*	53%*e*	.23

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

Glass; a Jobbers' list price per box, 14 x 20, as, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Sept. 1939; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *e* Discount from list of Jan. 16, 1946. *f* Disc from Oct. 1950.

Explosives; * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $9.00 per trip. *h* F.o.b. city per 100 lb. forcite, 40%. Forcite 60%, $21.75. *i* F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.175	$0.2075	$0.2275
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.18 – .1875	.2125– .22	.2325– .24
Rocky Mtn. States	.18 – .1925	.2125– .22	.2325– .245
Pacific N. W. States	.1775– .19	.21 – .2225	.23 – .2425
Pacific S. W. States	.175 – .1825	.2075– .21	.2275– .2325

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.43	....
12-in.— 2-ft. from butt	6-in.	50 to 59-ft.	.46	....
12-in.— 2-ft. from butt	6-in.	60 to 69-ft.	.50	....
12-in.— 2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.— 3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in.— 2-ft. from butt	6-in.	50 to 69-ft.	.50/.60	....
14-in.— 2-ft. from butt	6-in.	70 to 79-ft.	.65	.85
14-in.— 2-ft. from butt	5-in.	80 to 85-ft.	.75	.86
14-in.— 2-ft. from butt	5-in.	85 to 89-ft.	....	.92
14-in.— 2-ft. from butt	5-in.	90 to 100-ft.	....	.94

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak		....	....	....
	Pine		....	....	....
New York	S. L. Sap Pine	$1.65	$3.00	$2.25	$3.40
	Mixed Oak	2.00	3.20	2.50	3.70
Birmingham	Hardwood	2.00	3.13*a*	2.68	4.16*a*
Chicago	Red Oak		4.00	....	5.00
Los Angeles	Douglas Fir	....	....	....	....
	Redwood	....	....	....	....
Philadelphia	Red Oak	2.15/2.33	3.10/3.13*a*	3.00/3.10	4.15/4.25*a*
St. Louis	White Oak	2.88	....	3.57	....
	Red Oak	2.78	3.43*a*	3.45	4.42*a*
	Sap Pine or Cypress	3.26*a*	....	4.17	....
San Francisco	Douglas Fir	2.56*e*	3.84*ef*	3.36*bf*	5.04*cef*
Montreal	Birch or Maple	*h*	*h*	*h*	*h*

Tr.— Treated; Untr.— Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$6.00
Chlorine cylinders, liquid, per lb. f.o.b. works	.0875
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.20
Soda ash, 58%, in paper bags, per 100 lb. dense	1.60
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.65
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	8.95

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE — PARTITION — SCORED			STRUCTURAL CLAY TILE — LOAD BEARING — SCORED			BRICK		LIME		
	Per M, lots of 2,000 pieces or over,			Per M, lots of 2,000 pieces or over,			Per M, in quantity		Per ton, In paper, Carload lot,		
	3x12x12 in.	4x12x12 in.	8x12x12 in.	8x12x12 in.	10x12x12 in.	12x12x12 in.	Common backing	Straight hard	Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	.....	.....	.....	.....	.....	.....	$26.75	$26.75	$19.00	$17.50	$17.50
Baltimore	$180.00	$191.00	$358.00	$102.00	530.00	605.00	37.00*k*	42.00*k*	30.00	20.60	.....
Birmingham	118.00*r*	128.00*p*	236.00*p*	283.00*p*	.....	.....	24.50*ff*	28.00*gg*	26.37	17.10	.....
Boston	149.00†	161.50†	298.00†	338.00†	.....	.....	33.50*h*	36.50*h*	32.30†	27.90†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	21.00	23.00	30.80	26.00	.....
Cincinnati	185.00*j*	195.00*j*	340.00*jdd*	.....	.....	.....	43.00*j*	46.00*j*	26.00*j*	24.25*j*	.....
Cleveland	149.00**	156.00**	.....	.....	.....	.....	32.00	32.00	25.50	23.50	31.00*ee*
Dallas	.....	110.00	.....	.....	.....	.....	18.75	.....	31.90	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	40.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	118.18	126.08	236.40	.....	293.30	$335.20	33.50*ee*	32.50*ee*	32.00	32.00	.....
Kansas City	115.00	122.50	245.00	245.00	305.50	367.00	26.00*o*	26.00*o*	30.50	24.50	27.00
Los Angeles	.....	.....	.....	.....	.....	.....	26.00§	.....	34.00	34.00	35.00
Minneapolis	171.50*p*	192.50*p*	386.00*p*	192.50*wp*	.....	.....	32.00*ep*	36.00	37.00*bbe*	28.00*bbe*	38.00*bbde*
Montreal	143.00*aq*	157.00*aa*	292.00*aa*	.....	.....	.....	26.50	36.50	24.60	.....	20.00*a*
New Orleans	170.00	170.00	310.00	.....	.....	.....	31.00	.....	38.00	26.00	37.50
New York	121.60*h*	129.76*h*	178.30*ch*	194.60*hn*	.....	.....	38.50	.....	38.00	32.00	.....
Philadelphia	126.30	134.80	252.60	302.74	361.35	455.74	29.00	32.00	36.00	21.50	28.50
Pittsburgh	112.00	117.00	189.00	216.00	279.00	317.00	32.00	40.00*q*	25.00	23.00	2.97*m*
St. Louis	136.00*ee*	156.00*ee*	226.00*ee*	307.50*ee*	345.00*ee*	.....	40.00*dd*	36.25*dd*	85*aaa*	63*aaa*	1.10*aaspee*
San Francisco	156.85*a**	177.10*a**	245.30*ddn**	187.20*a**	.....	.....	35.00	.....	26.30	26.30	2.58*m*
Seattle	160.00*ee*	175.00*e*	.....	175.00*eew*	.....	.....	39.00*s*	49.00*s*	37.50*shh*	1.50*ff*	3.90*mhh*

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5% 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *i* F.o.b. warehouse only. *j* Truck load or over. *k* $1.00 discount. *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 7½ x 12. Speed tile. *o* F.o.b. Buffalo. *p* Truck lots. *r* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11½. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common *gg* Select. *hh* LCL. ‡ F.o.b. plant. *ii* Per 60 lb sack, no incr., ton price no longe quoted. **Only 1 plant producing, quotes on warehouse delivery, previous quote were truck deliv. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD	WHITE LEAD	READY-MIXED PAINT			ROOFING SUPPLIES Carload lots f.o.b. factory				
	Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	Per 100 lb. in 100 lb. cases in oil *w*	Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	Rolls, slate surfaced, 85–90 lb. per sq	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$20.75	$31.025	$1.75	$2.70	$1.65	$2.06	$2.06‡	$2.06‡	$1.00‡	$36.00‡
Baltimore	20.50	30.65	2.65	4.10	3.22	2.50	4.17	4.17	.42	37.00
Birmingham	20.75	31.025	3.90	3.40	....	2.80	2.75	2.75	....	40.50*ee*
Boston	20.50	30.65	....	....	....	2.80*ij*	2.75*ii*	2.75*ii*	.47	42.00
Chicago	20.50	30.65	....	....	....	2.73‡*u*	3.04‡*o*	3.04‡*o*	38.00‡*bbr*	44.00‡
Cincinnati	20.50	30.65	....	....	....	2.50	2.50	2.50	.42*y*	42.36
Cleveland	20.50	30.65	3.10*pqqA*	3.37*qqB*	3.10*C*	2.50*q*	2.50*o*	2.50*o*	.36*ff*	40.00*hh*
Dallas	20.75	31.40	....	4.05	....	3.50*q*	3.75*o*	4.35*o*	.38	46.00
Denver	21.00	31.15	2.96	4.50	2.86	3.25*o*	2.76*o*	2.76*o*	.47*ff*	42.00
Detroit	20.50	30.65	2.35	3.30	2.50	2.50	2.50*f*	2.50	.51	40.00
Kansas City	20.50	30.77	....	2.71	2.65	2.39	2.43*o*	2.43*o*	.313	48.00
Los Angeles	20.50	30.90	3.30	4.50	4.20	2.97	2.01*e*	*l*	.44	*l*
Minneapolis	20.50	28.55 30.77	....	....	....	2.50*hidd*	2.50*hidd*	2.50*hidd*	.34*sdd*	37.00*e*
Montreal	....	29.70	3.75*t*	4.20*t*	4.62*t*	3.50*t*	3.25*tf*	3.25*tf*	1.10*t*	2.90*kt*
New York	20.50	30.65	3.45*y*	....	....	2.50	2.50*o*	2.50*o*	.34*z*	37.00
Philadelphia	20.50	30.65	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	20.50	30.65	2.45	2.55	2.20	2.90	2.90*o*	2.90*o*	.39	42.00
St. Louis	20.50	30.65	....	....	....	2.50	2.50*h*	2.50*h*	.31*y*	38.00
San Francisco	20.50	30.90	2.40	3.40	1.35	2.61	3.56*ii*	....	.41	....
Seattle	20.50	31.15	2.51*m*	2.67*m*	....	3.58*mqee*	3.05*kmee*	....	.59*mcc*	52.00*jmee*

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-494A. *c* ASTM Spec. D266-41. *d* 85% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* Per roll. 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *j* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* Per 60-lb. *p* 6-drum. *q* Per 90-lb. roll. *r* F.o.b. factory Chicago. *s* ASTM Spec. D266-41. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.2 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approxi mate cost per 100 lbs. *bb* Roofers coating and cement. Price per ton. *cc* LCL truck delivery. *dd* 2% cash discount. *ee* Asphalt, in 100 lb. packages. *ff* 5-gal drums. *gg* F.o.b. factory. *hh* Incl. freight. *A.* TTTP 27. *B.* TTA 468A. *C.* TTP 31A.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Brick-layers	Car-penters	Struct. Iron Workers	Hoisting Engineers	Plas-terers	Electrical Workers	Steam-fitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$2.50	$2.00	$2.25	$2.25	$2.50	$2.50	$2.35	$1.05	$1.05
Baltimore	3.00	2.35	2.80	2.60 2.80	2.75	2.75	2.50	1.38	1.38
Birmingham	2.75	2.125	2.35	1.975	2.30	2.50	2.50	1.10	1.20
Boston	2.885	2.475	2.70	2.80	2.85	2.75	2.695	1.815	1.815
Chicago	2.625*k*	2.55	2.60	2.50	2.81*n*	2.91*n*	2.60	1.90*m*	1.90*m*
Cincinnati	2.70	2.325	2.50	1.675 2.675	2.50	2.70	2.55	1.65	1.65
Cleveland	2.70*t*	2.825*e*	2.825	2.825	2.825	2.825	2.825	2.10	1.85
Dallas	3.125†	2.25	2.50	2.25	3.125†	2.50	2.375	1.20	1.35
Denver	3.00	2.35	2.30	2.35	3.00	2.65	2.65	1.50	1.50
Detroit	2.85	2.60	2.85*m*	2.80	2.964*f*	2.85	2.75*m*	1.90	1.90
Kansas City	2.675	2.225	2.375	2.225 2.45	2.825	2.425	2.625	1.65	1.65
Los Angeles	2.75	2.35	2.50	2.30	3.125	2.625	2.625	1.75	1.75
Minneapolis	2.40	2.12	2.275	2.07	2.50	2.56*n*	2.435	1.67	1.67
New Orleans	2.60	1.975	2.35	2.225	2.275	2.40	2.35	1.10	1.10
New York	3.548*r*	3.096*n*	3.348*n*	3.348*n*	3.599*ar*	3.456*ae*	3.286*p*	1.90	1.90
Philadelphia	3.31*t*	2.525	2.89*t*	2.65	3.075*k*	3.03/3.283*u*	2.825*k*	1.475	1.775
Pittsburgh	3.00	2.65	2.625	2.80	2.625	2.625	2.80	1.60	1.60
St. Louis	3.09*e*	2.70*h*	2.50	2.55	2.875	2.6775*e*	2.625	1.65	1.65 1.80
San Francisco	3.25*h*	2.375	2.575	2.19	3.00	2.75	2.625	1.65	1.65
Seattle	3.25	2.30	2.50	2.45	3.00	2.65	2.75	1.90	1.95
Montreal*	1.60	1.40	1.50	1.30	1.60	1.50	1.55	1.00	.85

a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vacation stamp fund for bricklayers; 2% for electricians, * Cost of living bonus now included in basic wage. *e* Includes 5¢ per hr. tool replacement. † Plus $5.00 daily bonus. *h* $2.37 bonus and housing + 5¢ vacation fund. *i* Incl. 2% welfare. *j* Incl. 9¢/hr. welfare. *k* Incl 7½ *e* hr. welfare fund. *l* Incl. 4% vacation fund. *m* Incl. 5¢/hr. welfare ins. fund. *n* Incl. 6¢ hr. welfare fund. *o* Incl. 3% welfare fund. *p* Incl. 3% welfare fund and 3% pension fund. *r* Incl. 3% welfare fund and 20¢ pension fund. *s* Incl. 4% welfare and pension fund and 4% vacation fund. *u* Incl. 1% welfare fund. *t* Still negotiating.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Mar.'51	Apr.'51
Common Wages—Building (8 hr. day)	av. per hr.	.72*	.68*
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	.88*	.75*
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	2.19*	1.88*
Bricklayers (8 hr. day)	av. per hr.	2.19*	1.88*
Struct. Iron Workers (8 hr. day)	av. per hr.	1.05*	1.05*
Struct. Steel Shapes 3"-15" x 12 meters	per metric ton	1,073.30	1,073.30
Reinf. Steel, Corr. Rods			
⅜" x 11 meters	per ton	1,218.30	1,218.30
½" x 11 meters	per ton	1,208.30	1,208.30
⅝" x 11 meters	per ton	1,198.30	1,198.30
¾" x 11 meters	per ton	1,188.30	1,188.30
⅞" x 11 meters	per ton	1,188.30	1,188.30
1" x 11 meters	per ton	1,188.30	1,188.30
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	36.00	42.00
Rose Gravel	per tr. load	34.00	38.00
Cement, Std. Port. (Tolteca)	per ton	125.00	130.00
Lumber			
Mex. Sacred Fir (Oyamel)	per M ft.	800.00	850.00
1st Class Pine	per M ft.	1050.00	1300.00
2nd Class Pine	per M ft.	850.00	950.00

* Increase by 1/6th—work 6 days, paid for 7 days.

ENR Skilled Average: (Bricklayers, Carpenters, Ironworkers). **$2.629. ENR Common Average: $1.608.**

scalping 1,000 tons an hour

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Hewitt Robins Heavy-Duty Scalpers are fast and tough—scalp 90-lb. per cubic foot rock at rates up to 1000 tons an hour. The heart of this rugged machine—the vibrator—is mounted on Torrington Spherical Roller Bearings to insure dependable operation.

Spherical Roller Bearings provide maximum capacity to handle the heavy loads that are part of normal scalping operations. The self-aligning feature of these precision bearings eliminates binding stresses that might ordinarily result from shock loads.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager **J. A. MAHONEY, Reports** **M. R. ROESSLER, Statistics**

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **Mass., Hingham**—SPRINKLER SYS.—B.A. 5/14—Dist. Pub. Wks. Office, First Naval Dist., 495 Summer St., Boston, replacement of sprinkler sys., Bldg. 10 and 13, Naval Industrial Reserve Shipyard, NOY 24836, Spec. 26962. Plans deposit $10. CD 46, under Public Bldgs.

BIDS ASKED—BUILDINGS

▲ **Conn., Berlin**—SCHOOL—B.A. 5/17—Town Bldg. Comm., City Hall, high school, $1,300,000. CD 7/22/49, under LB.

▲ **Mass., Boston**—HOUSING—B.A. 5/18—City of Boston Housing Auth., 230 Congress St., 200 units housing Proj. PHA 2-11, Tremont and Whittier Sts., Roxbury. CD 8/12/49.

SOON LETS CONTRACT—BUILDINGS

Mass., Boston—APARTMENT—Owner, c/o H. L. Feer and Wm. E. Nast, archts., 27 School St., soon lets contract, 4 story, brick apartment bldg., 839 Beacon St., $500,000.

LOW BIDDERS—HEAVY CONSTRUCTION

▲† **Davidson Constr. Co.**, 1306 Main St., Manchester, N. H. Low Bidder, $3,000,000. fire and crash station, 2 warehouses, refrigeration bldg., service shops, hangar, bakery, spur track, site imprvs. at Limestone Air Force Base, LIMESTONE, ME. U. S. Eng., P. O. Box 2316, Boston 7, Mass. CD 11/17.

▲ **Commonwealth of Mass.**, Dpt. Pub. Wks., 100 Nashua St., Boston, Mass. rejected bids Apr. 10, superstructure of multi-span steel truss bridge over Merrimac River, Contr. UI 62 (8), Contr. A. Amesbury and Newburyport, MASSACHUSETTS. L. B. $2,795,639. CD 4/16, under LB. Will readvertise.

Bagley Mucci, Inc., 6 Dexter St., Medford, Mass. Low Bidder, $357,357. elementary SCHOOL, Fenno St., QUINCY, MASS. City, supt., Schools, 52 Coddington St., Quincy, Mass. Bids Apr. 20. CD 4/9.

CONTRACTS—BUILDINGS

▲ **A. E. Stephens Co.**, 1200 Main St., Springfield, Mass., Contract Awarded, $1,937,900, HIGH SCHOOL Sage Park Capen St., WINDSOR, CONN. Town, town. mgr., Town Hall, Windsor, Conn. Bids Mar. 27. CD 4/6, under LB.

▲ **Arthur G. Woods Enterprises**, 32 Maple Ave., Windsor, Conn., Owner Builds, $1,150,000, 92 frame RESIDENCES, Woody Brook off Windsor Ave., WINDSOR, CONN.

MIDDLE ATLANTIC

BIDS ASKED—BUILDINGS

† **Md., Bethesda**—BOILER PLANT—B.A. 5/22—General Services Admin., Pub. Bldgs. Service, 19 and F Sts., N.W., Wash., D. C., tunnel piping etc at boiler plant and incinerator bldg. at National Institutes of Health. Proj. 18-065. Plans deposit $5. CD 5/27/48, adv. ENR 5/10.

LOW BIDDERS—HEAVY CONSTRUCTION

† **Potter-DeWitt Corp.**, Pavilion, N. Y. Low Bidder, $155,350., channel restoration Canisteo River and Canacadea Creek, Serial No. CIVENG 18-020-51-19 ***A. G. Hack & Sons, Bloomsburg, Pa., $95,200, Chauncey Run Channel imprvs., Serial No. CIVENG 18-020-51-20; $40,907, wall rehabilitation, Canacadea Creek and Chauncey Run, Serial No. CIVENG 18-020-51-21, all foregoing at Hornell, NEW YORK. U. S. Eng., 21 St. and Maryland Ave., P. O. Box 1715, Baltimore 3, Md. Bids Apr. 12. CD 4/9.

A. H. Lupton, Jr., Inc., Florida Ave., Bridgeton, N. J., Low Bidder, $104,737, sewage treatment plant imprvs., BRIDGETON, N. J. City, Bridgeton, N. J. Bids Apr. 16.

Eastern Engineering Co., 4 N. Carolina Ave., Atlantic City, N. J. Low Bidder, $115,920, hydraulic dredging, Torresdale Filter plant sedimentation basin, PHILA., PA. Dpt. Pub. Wks., City Hall Annex, Phila. Pa., Elbert J. Taylor, Water Bureau chief. CD 10/30/44.

LOW BIDDERS—BUILDINGS

John D. Lawrence, 343 Hazel Ave., Westville, N. J., Low Bidder, $525,000, elementary SCHOOL, LAUREL SPRINGS, N. J. Roman Catholic Diocese of Camden, 231 Cooper St., Camden, N. J. Bids Apr. 16. CD 4/10.

▲ **Leimbach Constr. Co.**, 3906 Hickory Ave., Baltimore, Md. Low Bidder, $1,696,350, est. $1,500,000, 2 story, part bsmt., 92x92 ft., 112x120 ft. and 64x119 ft. east wing, 74x312 west wing, brick, block, steel North Point High SCHOOL on 20 acre Wise and Merritt Aves., TOWSON, MD. Baltimore Co., Bd. Educ., Aigburth Rd., Towson, Md. Bids Apr. 24. CD 4/5.

Distr. Comrs., District Bldg., Wash., D. C., rejected bids Mar. 22, Adelaide Davis SCHOOL ADDN., 44 Place and H Sts., S.E., L. B. $456,248, WASH., D. C. CD 3/26 under LB.

CONTRACTS—BUILDINGS

▲ **MacDonald Engineering Co.**, 188 W. Randolph St., Chicago 1, Ill., design and construct, Approx. $3,000,000. cement PLANT, JAMESVILLE, N. Y. Alpha Portland Cement Co., Easton, Pa. CD 4/19.

† **James King & Son, Inc.**, 350 Fifth Ave., New York, N. Y. Contract Awarded, $327,200. alterations to U. S. Marine HOSPITAL, STAPLETON, N. Y. Pub. Bldgs. Service, General Services Admin., Bldg., Wash. 25, D. C. Awarded Apr. 9. CD 10/5/45

Jack Shelby, Atlantic City, N. J., Contract Awarded, $700,000, RESIDENTIAL DEVELOPMENT, Fife Rd., EGG HARBOR, N. J. Sun Realty Co., 1201 Atlantic Ave., Atlantic City, N. J. R. Bayne Williams, 8003 Ventnor Ave., Atlantic City, archt.

B. F. Parrott & Co. Inc., Boxley Bldg., Roanoke, Va., Contract Awarded, Approx. $300,000, 1 story 128x196 ft., approx. 30,000 sq. ft., brick, steel DYE HOUSE addn., and Dryer Bldg., GLASGOW, N. J. James Lies & Sons Co., Bridgeport, Pa.; United Engineers & Constructors Inc., 1401 Arch St., Phila., Pa., archts and engrs.

Clinton Developers, Clinton Ave., Trenton, N. J., Separate Contracts, $300,000, RESIDENTIAL DEVELOPMENT, S. Clinton Ave., TRENTON, N. J. Dante D'Anastasio, 815 Federal St., Camden, archt.

Frank Adamucci, 2151 N. Wilson Ave., Margate, N. J., Separate Contracts, $300,000, RESIDENTIAL DEVELOPMENT, Crystal Terrace, WESTMONT, N. J.

D. T. Riffle, Inc., 1006 Forbes St., Pittsburgh, Pa. Contract Awarded. Approx. $100,000. 1 and 2 story 20x30 ft. and 30x101 ft. tile yard office, SERVICE bldg., oil compressor bldg., interlocking tower, PITTSBURGH, PA. Pennsylvania R.R., J. L. Gressitt, ch. engr., Broad St. Station Bldg., 1617 Pennsylvania Blvd., Phila., Pa. Ingham, Boyd & Pratt, 1211 Empire Bldg., Pittsburgh, Pa., archts.

W. F. Wilson, Brookville, Md. Contract Awarded, $81,173. Contr. 922 W&S, approx. 14,205 ft. ¾ to 12 in. water mains, 12,205 ft. 6 and 8 in. plain concrete or vitr. sewers, 1,235 ft. 6 in. sewer house connections in Connecticut Ave. Estates, HYATTSVILLE, MD. Washington Suburban Sanitary Comn., Hamilton St., Hyattsville, Md. Bids Apr. 23. Awarded Apr. 24. CD 4/19.

SOUTH

BIDS ASKED—BUILDINGS

Ky., Louisville—HOSPITAL—B.A. About 5/20—Kentucky Baptist Hospital, 810 Barrett St., 60-bed hospital wing and student nurses home, $800,000.

Miss., Biloxi—HOUSING—B.A. 5/22—Biloxi Housing Auth., 120 units housing Proj. Miss. 5-4, $750,000. Matthes & Landry, 214 W. Pine St., Hattiesburg, archts. CD 12/2/49.

Miss., Jackson—MUNICIPAL COURT—B.A. 5/22—City, municipal court-jail bldg., $700,000. James T. Canizaro, Deposit Guaranty Bldg., archt. CD 1/4.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
B.A. Bids Asked
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

▲ **Tenn., Memphis**—HOUSING—B.A. 5/23—Pub. Wks. Office, Sixth Naval Dist., Naval Base, S. C., construct, manage, finance, 540 military HOUSING unit project at Naval Air Station. $4,136,675. CD 3/20.

▲ **Ala., Athens**—HOUSING—B.A. 7/12—Athens Housing Auth., Athens, 200 housing units, $1,000,000. CD 12/7/49.

SOON LETS CONTRACT—HEAVY CONSTRUCTION

Mississippi—RURAL DISTRIBUTION LINES—Alcorn County Electric Power Assn., Corinth, soon lets contract, 178.3 mi. rural distr. lines, Alcorn Co., Allen & Hoshall, 65 McCall Place, Memphis, Tenn., engrs.

LOW BIDDERS—HEAVY CONSTRUCTION

† **E. C. Ernst, Inc.**, 1622 14 St., N. W. Wash., D. C. Low Bidder, $74,850, installing fire alarm system at the Marine Corps Schools, QUANTICO, VA. Pub. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash. D. C. CD 1/29.

E. H. Hines Constr. Co., Box 924, Greenwood, S. C. Low Bidder, $66,258. est. $50,000-$75,000, structures on 8.37 m. N. C. 10 and 27, Proj. 8255, S-617 (1), Cleveland Co.***T. F. Houser, Box 5178, Asheville, N. C. $96,474. structures on 6.56 m. Proj. No. 9443, F-16 (8), Haywood Co.***Harvey H. Stewart, Box 1932, Charlotte, N. C., $418,489. est. $300,000-$400,000. structures U. S. 29, 52 and 70, Proj. 6733, Rowan and Davidson Counties.

J. C. Edwards, Box 197, Orangeburg, S. C. $78,400. est. $50,000-$75,000. structures U. S. 19 and 23, Proj. No. 9086, U-661 (5), Buncombe Co.**received no bids Apr. 24, structures U. S. 258, Proj. 2291, Greene and Pitt Counties, NORTH CAROLINA. State Hy. and Pub. Wks. Comn., Charlotte, N. C. Bids Apr. 24. CD 4/16.

▲ **Kiker & Yount, Inc.**, Box 330, Reidsville, N. C. Low Bidder, $147,014. est. $150,000-$175,000. traffic bound macad. b. conc. binder and surf. 2.86 mi. U.S. 220, Proj. No. 5901, F-625 (7), Rockingham and Guilford Counties***Brown Paving Co., Box 484, Lexington, N. C., $185,709. est. $175,000-$200,000. sand asph. base and surf. course 13.9 mi. Proj. 1-9-10-203, 1-9-10-206, 1-9-10-207, Martin Co.; $100,715. est. $100,000-$125,000. sand asph. or b. conc. surf. and binder 19 mi., U. S. 158 Proj. No. BS 4-6-41-116, 4-9-41-209, 4-9-41-210, 4-9-35-207, Vance and Franklin Counties***Dickerson, Inc., Box 448, Monroe, N. C., $161,316. est. $125,000-$150,000. bit. surf. tr. or sand asph. or b. conc. surf. 46.3 mi. proj. 6-9-55-217, Moore Co.; $98,725. est. $75,000-$100,000. sand asph. or b. conc. binder and surf. 9.3 mi. Proj. No. 2-9-26-209, Washington Co.; $96,477. est. $75,000-$100,000. sand asph. or b. conc. surf. course 16.4 mi. Proj. No. 2-9-15-210, 2-9-15-219, Beaufort Co.; $118,301. est. $100,000-$125,000. bit. surf. tr. or sand asph. or b. conc. surf. 10.89 mi. Proj. No. 9-9-46-212, Guilford Co.; $155,-516. est. $125,000-$150,000. bit. surf. tr. or sand asph. or b. conc. surf. 43.3 mi. Proj. No. 6-9-50-215, Chatham Co.; $84,382. est. $75,000-$100,000. bit. surf. tr. b. conc. or b. conc. surf. 21.1 mi. Proj. 9-9-79-208, 9-9-79-215, Catawba Co.; $76,878. est. $50,000-$75,000. bit. surf. tr. or sand asph. or b. conc. surf. course 21 mi. Proj. 6-9-52-215, Harnett Co.

Lavender Bros., Earl, N. C. $125,138. est. $125,000-$150,000. STBC, bit. surf. tr. or b. conc. 8.37 mi. N. C. 10 and 27, Proj. 8255, S-617 (1), Cleveland Co.***Ziegler-Cline Constr. Co., Box 186, Fayetteville, N. C., $67,554. est. $50,000-$75,000. sand asph. or b. conc. surf. course 14.7 mi. Proj. 9-9-51-213, Hoke Co.***Shepherd Constr. Co. Inc., Box 3249, Station F, Atlanta, Ga., $112,874. est. $75,000-$100,000. sand asph. or b. conc. surf. 25.9 mi. Proj. 6-9-57-232, 6-9-58-215, Robeson and Scotland Counties.

E. H. Hines Constr. Co., Box 924, Greenwood, S. C., $98,788. est. $75,000-$100,000. bit. surf. tr. or b. conc. surf. 25.8 mi. Proj. 9-9-81-211, 9-9-81-216, Code 5900-913, 9-9-83-208, Gaston and Lincoln Counties***A. R. Thompson, Constractor, Inc., Rutherfordton, N. C., $99,189. est. $100,000-$125,000. STBC, bit. surf. tr. or b. conc. surf. 9.7 mi. Proj. 9-986-213, Rutherford Co.***Asheville Paving Co., Box 7068, Asheville, N. C., $99,171. b. conc. binder and surf. course 9.4 mi. U. S. 19 and 19E Proj. No. BS 10-6-100-126, Yancey Co.***Barrus Constr. Co., Box 561, Kinston, N. C., $69,067. est. $50,000-$75,000. sand asph. or b. conc. surf. course 9.4 mi. Proj. 2-9-21-211, 2-9-18-211, Lenoir and Greene Counties.

White Constr. Co., Kinston, N. C., $73,675. est. $50,000-$75,000. sand asph. or b. conc. surf. course 10.3 mi. Proj. No. 2-9-24-216, Pitt Co. $63,839. est. $50,000-$75,000. sand asph. or b. conc. surf. course 9.8 mi. Proj. 2-9-24-222, 2-9-24-241, Pitt Co.*Thompson-Arthur Constr. Co., Box 1197, Greensboro, N. C., $84,048. est. $50,000-$75,000. traffic bound macad. and b. conc. binder and surf. 0.82 mi. N. C. 87, Proj. No. BS 5-6-49-188, Rockingham Co.***F. D. Cline Constr. Co., Box 349, Raleigh, N. C., $73,273. est. $50,000-$75,000. sand asph. or b. conc. surf. course 14.8 mi. Proj. 6-9-52-214, Harnett Co.

Proost Constr. Co., Box 526, Concord, N. C., $100,474. est. $75,000-$100,000. bit. surf. tr. or sand asph. or b. conc. surf. 31.6 mi. Proj. No. 6-9-51-216, Davidson Co.***Taylor Constr. Co., Box 5129, Ashe-

ville, N. C., $335,906 grading 6.56 mi. Proj. No. 9443, F-16 (8), Haywood Co. NORTH CAROLINA, State Hy. and Pub. Wks. Comm., Raleigh, N. C. Bids Apr. 24. CD 4/16, 4/18.

F. A. Triplett, Inc., Chester, S. C., Low Bidder, $60,267, construct 331 ft. rein.-con., structural steel and creosoted timber bridge over Rocky Creek near Rossville, Route 901, S. C. Docket No. 12.286, FAP NO. S-239 (2), Chester Co.***rejected bids Apr. 17, construction of 230 ft. rein.-con. bridge over Hard Labor Creek with 0.514 mi. of earth graded and bit. surfaced approaches; 210 ft. rein.-con. bridge over Cuffeytown Creek with detour road and detour bridge near McCormick, Route 43, S. C. Docket No. 13.251, FAP No. F-288 (2), McCormick Co. L. B. $107,638***received no bids Apr. 17, construction of 1.904 mi. of embankment on the approaches to the proposed Ashley River bridge between North Charleston and U. S. Route 17, S. C. Docket No. 10.325.1 FAP No. F-2571, Charleston Co. SOUTH CAROLINA, State Hy. Dpt., Columbia, S. C. Bids Apr. 17. CD 4/12.

State Hy. Dpt., Columbia, S. C., rejected bids Apr. 17, bit. retreatment (Class A) and hot laid b. conc. surf. course resurf. 17.5 mi. U. S. Route 29 from Gantt to point approx. 5 mi. south of Williamston and 6.4 mi. State Route 20 from Williamston to Belton; hot laid b. conc. resurf. 0.8 mi. Road 13 and 0.6 mi. Road No. 76, S. C. Dockets Nos. 4.1053 and 23.1067 Anderson and Greenville Counties***bit. retreatment (Class A) resurf. 4.54 mi. and hot laid b. conc. surf. course 8.6 mi. U. S. Route 301 from intersection at Pee Dee Station to point 1.5 mi. north of Dillon county line, S. C. Dockets Nos. 17.1008 and 34.1010, Dillon and Marion Counties*** bit. retreatment (Class A) resurf. 5 mi. and hot laid b. conc. surf. course 14.2 mi. U. S. Route 78 between Four Hole Swamp and Summerville and 0.5 mi. U. S. Route 178 at Walnut Swamp, S. C. Dockets Nos. 18.1012 and 18.1013, Dorchester Co. L. B. $132,483.

bit. retreatment (Class A) resurf. on shoulders and hot laid b. conc. surf. course resurf. 15.3 mi. U. S. Route 178 from Saluda to Batesburg, S. C. Docket No. 41.1013 Saluda Co. L. B. $76,318***grading, bit. surf. and construction of concrete curb and gutter and sidewalk 0.306 mi. Road 105, being Mill and Brook Sts. at Abbeville Mill in Abbeville; grading, bit. surf. 0.816 mi. Road 126 from Chestnut St. to Road 133 in Abbeville, 0.647 mi. Road 122 from Route 72 to Road 33 in Abbeville and 2.091 mi. Roads 52 and 120 from end of pavement in Abbeville easterly and southerly to a county road, S. C. Dockets Nos. 1.251 and 1.269 Parts 1, 2, 3, and 4, Abbeville Co. L. B. $123,292.

grading, bit. surf. construct concrete curb and gutter and sidewalks 0.748 mi. U. S. Route 25 and State route 123 from Cedar St. in Edgefield to the northeastern city limit; grading, bit. surf. 1.405 mi. Roads 44, 78, 87 and 89 being streets in Edgefield and 0.458 mi. Roads 66 and 109 being streets in Trenton and 0.15 mi. Road 122 being drives at Ebenezer Church, near Trenton, S. C. Dockets Nos. 19.267, Parts 1 and 2, 19.269, 19.272 Parts 1, 2, 3, and 4, and 19.274, FAP Nos. F-240 (5) and F-184 (2), Edgefield Co. L. B. $119,424. SOUTH CAROLINA. CD 4/12.

Rust Eng. Co., Exchange Bldg., Birmingham, Ala., Low Bidder, $814,900, Bessemer Sewage Treatment Plant, BIRMINGHAM, ALA. Jefferson Co., Court House, Birmingham, Ala. Bids Apr. 24. CD 3/28.

Baird & Latimer, Box 56, Selma, Ala., Low Bidder $144,211, bridge and approaches 1.252 mi. between Movico and Mt. Vernon, F-81 (2), Mobile Co.; $64,273 bridge and approaches 0.736 mi. on U. S. 82 near Gordo F-127 (7), Pickens Co.***G. W. Norrell Contg. Co., Georgiana, Ala., bridge 0.059 mi. over Locust Fork of Arriar River between Brooksville and Ala. 32, FA-S-399 (4), Blount Co. $124,468 mi. substructures 0.13 mi. of bridge over Warrior River on Coaldale-Trafford Rd., F-A-S-488 (1), Proposal A, Jefferson Co.***Carlton Contg. Co., Box 731, Albany, Ga., $65,871, bridge widn., 0.024 mi. on Baza-Guntersville Road, F-88 (5), Four Lane Section Marshall Co. ALABAMA State Hy. Dpt., Montgomery, Ala. Bids Apr. 20. CD 4/12 and 4/20.

Clyde O. Mitchell, 104 N. 44 St., Birmingham, Ala., Low Bidder, $100,903, base and bit. 11.089 mi. Co. Rds. from Eutaw west toward Mt. Hebron and between Boligee and Tishabee, SACP-365-B and 387-A, Greene Co.; $165,299, bit. and bridges 8.687 mi. from U. S. 82 (near Coal Fire) north and west toward Liberty High School, FA-S-492 (1), Pickens Co.; **Blount Bros. Constr. Co.,** Box 1144, Montgomery Ala., $99,696, base and bit. 16.899 mi. from Blues Old Stand to Smuleye from Midway to Pine Grove and from Blues Old Stand to Pike Co. Line, SACP-769-D, 7145-A and 7147-A, Bullock Co. ALABAMA State Hy. Dpt., Montgomery, Ala. Bids Apr. 20. CD 4/12.

LOW BIDDERS—BUILDINGS

▲ **J. A. Jones Constr. Co.,** 133 Ellis St. N. E., Atlanta, Ga., Low Bidder, $1,585,500, LIBRARY at Georgia School of Technology, ATLANTA, GA. Bd. Regents, University System of Georgia, 20 Ivy St., S. E., Atlanta, Ga. Bids Apr. 25. CD 4/6.

Jack A. Roberts, 1318 N. 23 St., & **The Steel Constr. Co.,** 720 4 Ave. S., both Birmingham, Ala., Low Bidder, $825,583, 92-unit Cooper Homes HOUSING proj. ANNISTON, ALA. Anniston Housing Auth., Anniston, Ala. Bids Apr. 24. CD 3/28.

CONTRACTS—HEAVY CONSTRUCTION

Joseph W. Barnwell, Jr., Columbia, S. C., Contract awarded, $101,672, construct 270 ft. rein.-con. bridge with 0.427 mi. graded and bit. surfaced approaches over Duncan Creek near Whitmire and widn. double 12x12 ft. culvert at Hunting Fork Creek, U.S. Route 176, widn. triple 7x10 ft. culvert at Kings Creek,

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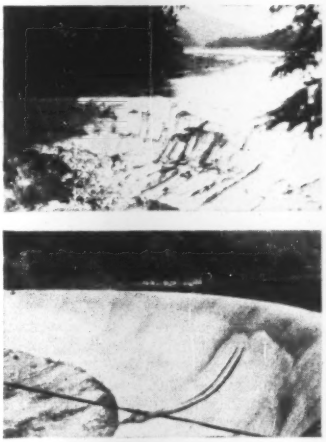

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State Route 19, S. C. Docket No. 36.258, Parts 1, 2, and 3. FAP No. F-324 (2), Newberry Co. SOUTH CAROLINA. State Hy. Dpt., Columbia, Bids Apr. 17. CD 4/12.

▲ J. F. Cleckley & Co., Orangeburg, S. C., Contract awarded, $185,461, hot laid b. conc. surf. course resurf. 38.98 mi. U.S. Route 301 between Savannah River and intersection of State Route 332 near Cope and 29.87 mi. U.S. Route 321 between Olar and North S. C. Docket Nos. 5.1006, 5.1009, 5.1010, 38.1020, and 38.1021, Allendale, Bamberg, Orangeburg Counties; $104,815, bit. retreatment (Class A) and hot laid b. conc. surf. course resurf. 4 mi. U.S. Route 17 between Parkers Ferry and Jacksonboro, hot laid b. conc. surf. course resurf. 22 mi. U.S. Route 17 between Jacksonboro and Garden's Corner, incl. 7,000 tons hot plant mix sand asph. for building up base, S. C. Dockets Nos. 7.1018, 10.1048 and 15.1014, Beaufort, Charleston and Colleton Counties; $77,168, hot laid b. conc. surf. course resurf. 4 mi. U.S. Route 521 between Camden and DeKalb and 21 mi. State Route 34 between Camden and Bishopville, S. C. Dockets 28.1008, 28.1010 and 31.1011, Kershaw and Lee Counties; $105,389, bit. retreatment (Class A) and hot laid b. conc. surf. course resurf. 8 mi. U.S. Route 76 from intersection of State Route 764 to the Wateree River; hot laid b. conc. surf. course resurf. 10 mi. State Route 763 between Sumter and Wedgefield, 2.1 mi. U.S. Route 15 and 0.94 mi. U.S. Route 521 in Sumter, S. C. Dockets Nos. 40.1026 and 43.1015, Richland and Sumter Counties.

Sloan Constr. Co. Inc., Peoples Natl. Bank Bldg., Greenville, S. C., $151,414, bit. retreatment (Class A) and hot laid b. conc. surf. course resurf. 20.4 mi. U.S. Route 321 between Winnsboro and Chester; bit. retreatment (Class A) resurf. 6 mi. and hot laid b. conc. surf. course resurf. 9 mi. State Route 72 between Chester and York County line, S. C. Dockets Nos. 12.1023 and 20.1013, Chester and Fairfield Counties; $169,852, hot laid b. conc. surf. course resurf. 13.3 mi. U.S. Route 501 between Conway and Myrtle Beach and 35.96 mi. U.S. Route 17 between Sampit River (near Georgetown) and Myrtle Beach, S. C. Dockets Nos. 22.1014, 26.1024 and 26.1025, Georgetown and Horry Counties; $73,668. bituminous retreatment (Class A) and hot laid b. conc. surf. course resurf. 11.3 mi. U.S. Route 52 between Kingstree and Florence county line; hot laid b. conc. surf. course resurf. 0.265 mi. State Routes 527 and 175 in Kingstree, S. C. Dockets Nos. 45.1015 and 45.1016, Williamsburg Co.

Knox Bros. Inc., Thomson, Ga., $132,278, grading, bit. surf. 10.64 mi. Roads 136 and 40 from Route 64 in Cottageville to Route 63 at Jacksonboro and 0.57 mi. Road 137 from Road 136 to Road 40 in Cottageville, S. C. Docket No. 15.276, Parts 1, 2 and 3. FAP No. 9-568 (1), Colleton Co.***Cherokee Inc., Sumter Hy., Columbia, S. C., $246,870. grading, drainage, bit. surf. with concrete curb and gutter and sidewalks, Route 151 (Carolina Ave.) from Road 37 (6th St.) westerly to Road 10 (home Ave.); grading, bit. surf. 1.329 mi. Road 37 (6th St.) from U.S. Route 15 south of Hartsville to Route 151 (Caroline Ave.) in Hartsville, S. C. Dockets Nos. 16.288.2, Parts 1, 2 and 3 and 16.291.2 Parts 1 and 2, FAP No. F-61 (8), Parts 1, 2, and 3, Darlington Co.***E. H. Hines Constr. Co. Inc., Greenwood, S. C., $263,678, grading, macad. base course, bit. surf. 4.266 mi. U.S. Route 321 (By-Pass) from U.S. Route 321 and State Route 213 south of Winnsboro to U.S. route 321 north of Winnsboro, S. C. Docket No. 20.261. FAP No. F-2576 (1). Fairfield Co.

Carolina Contrg. Co. Inc., 1000 Adeline St., Columbia, S. C. $88,328. grading, but. surf. 2.573 mi. Road 72 from Road 47 in Scranton northeasterly to a county road, 5.149 mi. Road 85 from Alternate U.S. Route 52 near Lake City easterly to a county road, S. C. Docket No. 1.320 Parts 1 2 and 3, Florence Co.***B. L. Jones & Co., Winder, Ga., $71,453, grading, bit. surf. 4.75 mi. Road 101 from U.S. Route 276 near Cleveland to the Pickens county line and 0.3 mi. on Road 124 from Road 101 to the Pickens county line, S. D. Docket No. 23.311 Parts 1 and 2, Greenville Co.

Ed. L. Smith, Blaney, S. C., $80,695. grading, bit. surf. 1.462 mi. Road 28 from Route 39 northeasterly to Richland Springs Church and School near Road 27, 1.058 mi. Road 85 from Route 39 southwesterly to a county road, 2.574 mi. Road 25 from Route 23 in Ward northeasterly to county road and 2.525 mi. Roads 125 and 185 from Roads 81 and 146 northerly and easterly to Route 702, S. C. Dockets Nos. 41.254 Parts 1 and 2, 41.255 Parts 1 and 2, 41.273, FAP No. S-564 (1), Saluda Co. Grand total $1,751,069. SOUTH CAROLINA. State Hy. Dpt., Columbia, S. C. Bids Apr. 17. CD 4/12.

CONTRACTS—BUILDINGS

▲ Paul Smith Constr. Co., 3103 N.W. 20 St., Miami, Fla. Contract Awarded, $1,800,000 by Patrick Homes, Inc., (sponsors) construct, manage and finance 180 HOMES at Patrick Air Force Base, Cocoa, FLA. for Dpt. Air Force, Pentagon Bldg., Wash., D. C.

▲ Rust Eng. Co., 575 6 Ave., Pittsburgh, Pa., Contract Awarded, $3,000,000, phosphate chemical PLANT, MULBERRY, FLA. International Minerals & Chemical Co., 20 N. Wacker Dr., Chicago, 6, Ill. CD 3/30, under CA.

Hubert Owen, Jackson, Tenn., Contract awarded. Approx. $300,000. CHURCH, JACKSON, TENN. West Jackson Baptist Church, c/o contractor.

▲ Rock City Constr. Co., 135 Fourth Ave., Nashville, Tenn. Contract awarded. Approx. $1,000,000 3 addnl. BUILDINGS at State School for Blind, NASHVILLE, TENN. State Bd. Educ., War Memorial Bldg., Nashville, Tenn.

▲† C. F. Rule Const. Co., 217 13 Ave. N., Nashville, Tenn. Contract awarded, $1,250 000. STEAM PLANT, TULLAHOMA, TENN. at Arnold Engineering Development Center. U. S. Eng., Tullahoma, Tenn. CD 1/23.

MIDDLE WEST

BIDS ASKED—BUILDINGS

▲ O., Lima—HOSPITAL—B.A. 5/24—Dpt. P. Wks., S. O. Linzell, Dir., Ohio Depts. Bldg., Columbus. 300 bed hospital unit for psychopathic offenders at Lima State Hospital. $1,450,000. Sims, Cornelius & Schooley, 2901 N. High St., Columbus, archts. and engrs., H. G. Allen, cons. archt., Div. of State Arch. and Engr., 705 Ohio Depts Bldg., Columbus, O. CD 10/21/49.

Ill., Midlothian—CONVENT—Bids Asked—St. Christopher Parish, 146 and Keeler Sts., 1 story, bsmnt., 38,000 sq. ft., convent, school and gymnasium. $375,000. Herman J. Gaul & Son, 228 E. Superior St., Chicago, 11, Ill., archts.

Ind., Decatur—CHURCH—Bids Asked—St. Mary's Roman Catholic Church, Rev. Msgr. J. J. Seimetz, Decatur, 2 story, stone, brick, rein.-con., steel church, school and rectory, $400,000. Edw. J. Schulte, 920 E. McMillan St., Cincinnati, O., archt. CD 3/18/48.

▲ Ind., Gary—PLANT—Bids Asked—Taylor Forge & Pipe Co., Dunes Hy., first unit 100x400 ft., pipe works plant on 175 acres, $1,500,000. Shaw, Metz & Dolio, 208 S. LaSalle St., Chicago, 4, Ill., archts. CD 3/27.

LOW BIDDERS—HEAVY CONSTRUCTION

City, Earl Woolsey, mayor, Jerseyville, Ill., cancelled bids to have been opened Apr. 15, WW imprvs. incl. developing 2 shallow wells, rehabilitation spring pumping station, booster station, filter bldg., clarifier and aerator 190,000 gal. reservoir, 53,000 lin. ft. 2- to 6-in. c.i. pipe, etc. JERSEYVILLE, ILL. Project postponed indefinitely. CD 4/9.

LOW BIDDERS—BUILDINGS

▲ J. J. Altman & Co., Spivey Bldg., East St. Louis, Ill. Low Bidder, $2,410,950, general contract, 300-unit brick, concrete asbestos sidings, etc., Roosevelt HOMES incl. community bldg.; John J. Keeley Constr. Co., 2001 State St., East St. Louis, Ill., $855,357 general contract 100-unit, brick, concrete asbestos sidings, etc., HOUSING and community bldg., Villa Griffin Project; received no bids for 300-unit brick, concrete asbestos siding, etc., John De Shields Housing Proj. incl. community bldg. EAST ST.-LOUIS, ILL. St. Clair County Housing Auth., James E. Haynes, exec. dir., 6 St. and Ohio Ave., East St. Louis, Ill. Bids Apr. 23. CD 4/10.

CONTRACTS—HEAVY CONSTRUCTION

Thomas E. Currie Co., 2531 Connor St., Detroit, Mich. Contract Awarded, $128,489. concrete paving, Proj. 1951 P 1, BIRMINGHAM, MICH. City Donald C. Egbert, city mgr., Birmingham, Mich. Bids Mar. 28. CD 3/23.

CONTRACTS—BUILDINGS

▲ W. E. Cook Constr. Co., Niles Bank Bldg., Niles, O. Contract Awarded. Approx. $3,000,000. 320x1,100 ft. refractories PLANT to make fire brick, containing 3 continuous fire brick kilns, 675 ft. long each, on 29-acre site north of WARREN, O. General Refractories Co., 1520 Locust St., Phila., Pa.

Colpaert Realty Co., Sheraton Bldg., South Bend, Ind. Owner Builds, $375,000. 35 RESIDENCES., SOUTH BEND, IND.

B. J. Regnell, 1005 W. Belmont St., Chicago, Ill. Contract Awarded, $100,000, 14,000 sq. ft. FACTORY ADDN., CHICAGO, ILL. Bodine Electric Co., 2650 W. Addison St., Chicago, 18, Ill. Leif Skadberg, 5153 N. Clark St., Chicago, 40, Ill., archts. Awarded Apr. 12.

▲ R. C. Wieboldt Co., 2353, Blue Island Ave., Chicago, 8, Ill. Contract Awarded, $1,000,000, McGaw AUDITORIUM, sports center, EVANSTON, ILL. Northwestern University, 619 Clark St., Evanston, Ill. Awarded Apr. 19. CD 1/17.

J. E. Williams Constr. Co., 6490 Page Ave., St. Louis, 14, Mo., Contract Awarded, $500,954, general contract, 2 story bsmnt., HOSPITAL and 1 story 44x23 ft. wing, MARION, ILL. Marion Memorial Hospital, John E. Giles, pres. Hospital Bd., Marion, Ill. Bids Apr. 18. CD 4/26, under LB.

Fuel Economy Co., New York Bldg., Minneapolis, Minn., Contract Awarded, $950,000, POWER PLANT, MOLINE, ILL. Iowa-Illinois Gas & Electric Co., Moline, Ill. Awarded Apr. 16. CD 3/27.

▲ John Griffiths & Son Co., 228 N. La Salle St., Chicago, 1, Ill., Contract Awarded, $20,000,000. 3d and 4th of Ridgland GENERATING STATION, STICKNEY, ILL. Commonwealth Edison Co., 72 W. Adams St., Chicago, Ill. Naess & Murphy, 80 E. Jackson St., Chicago, 4, archts. Awarded Apr. 17.

J. P. Cullen & Sons, Janesville, Wis., Contract Awarded, $829,850, general contract, 4 story L-shaped 97x150 ft. state LABORATORY of Hygiene, MADISON, WIS. State Bd. Health, Madison, Wis. Bids Mar. 21. CD 3/27, under LB.

▲ Acme Home Builders, 14460 Dexter St., Detroit, Mich. Owner Builds. $20,000,000. 2,000 brick HOMES on 450 acres, Bretton Woods section, TRENTON, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† Minn., Duluth—AIRPORT IMPRVS.—B.A. 5/15—U. S. Eng., 1709 Jackson St., Omaha, Neb., site preparation,

runway extension, apron, taxiway, addnl. facilities at Duluth Air Force Base, Inv. 51-33 (SP). CD 4/24.

† South Dakota—TOWERS—B.A. 5/31—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point, f.o.b. cars at Mitchell, galvanized-steel double-circuit towers and appurtenance for the Dahe-Fort Randall-Sioux City 230 kilovolt transmission lines, Transmission Div. Missouri River Basin Proj. Inv. No. DS-3391.

BIDS ASKED—BUILDINGS

Tex., McKinney—HOUSING—B.A. 5/22—McKinney Housing Auth., McKinney, 100 housing units. Tex. 27-1 and 27-2. $825,000. Plans deposit $50. Boese & Harkrider, 1127 Texas and Pacific Bldg., Fort Worth, engr. and archts. CD 10/19/49.

▲ Tex., Midland — PLANT — Bids Asked — Tex-Harvey Gasoline Co., Midland, high-pressure absorption type gasoline plant. $5,750,000. CD 4/18.

SOON LETS CONTRACT—BUILDINGS

Okla., Anadarko—POWER PLANT—Western Electric Co-operative Corp., Anadarko, soon lets contract, power plant. $800,000. Laramere & Douglass, Inc., 79 E. Adams St., Chicago 3, Ill., engr. CD 12/15.

LOW BIDDERS—HEAVY CONSTRUCTION

▲† J. A. Tobin Constr. Co., 3700 Rainbow St., Kansas City, Kan. and L. G. Barcus & Son, 1430 State St., Kansas City, Mo. Low Bidder. $1,375,325. Jersey Creek Sewer, Fairfax-Jersey Creek Unit Kansas City Flood Control Proj. Inv. 110. KANSAS. U. S. Eng., 601 Davidson Bldg., Kansas City, Mo. Bids Apr. 24. CD 3/29.

▲† Kohler, Stover & Ivey and Wyche & Hammond, 7635 Bryn Mawr St., Dallas, Tex. Low Bidder. $2,282,000, est. $2,500,000. rein.-con. power house, installing electrical equip. Tenkiller Ferry Dam on Illinois River, Inv. No. CIVENG 34-066-51-60, near Gore, Sequoyah Co., OKLAHOMA. U. S. Eng., Box 61, Tulsa, Okla. Bids Apr. 20.

† Maxey & Leftwich, 8811 E. Susan St., Albuquerque, N. M. Low Bidder. $623,366, est. $60,000. Water lines, facilities, Serial No. Eng 29-005-51-31, ALBUQUERQUE, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Apr. 20.

▲† Maxey & Leftwich, 8811 E. Susan St., Albuquerque, N. M. Low Bidder. $623,366. street constr. and asph. paving, ALBUQUERQUE, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Apr. 20.

† Lembke, Clough & King, 1719 N. 5 St., Albuquerque, N. M. Low Bidder. $327,502. Storm and sanitary sewers, drainage area earthwork. Serial No. Eng 29-005-51-31, ALBUQUERQUE, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Apr. 20. CD 4/11.

LOW BIDDERS—BUILDINGS

Floyd Richards, 505 Jackson St., Amarillo, Tex. Low Bidder. $639,293. Senior HIGH SCHOOL, DALHART, TEX. Dalhart Independent School Dist., Dalhart, Tex. Bids Apr. 19. CD 4/4.

CONTRACTS—HEAVY CONSTRUCTION

▲ Phillips Petroleum Co. & Assoc., Bartlesville, Okla. Purchase and Hire. $1,385,000. 145 mi. 12-in. crude oil trunk pipe line; Midland area, Midland, Upton, Glasscock and Reagan Counties, TEXAS. CD 4/12.

CONTRACTS—BUILDINGS

Ringland-Johnson Constr. Co., 820½ Locust St., Des Moines, Ia. Contract Awarded. Approx. $500,000. Branch WAREHOUSE and distribution plant, DES MOINES, IA. Massey-Harris Co., 915 King St., Toronto, Ont., Canada. Hanker & Heyer, Commerce Title Bldg., Memphis, Tenn., archts.

▲ Weitz Constr. Co., 406 Fleming Bldg., Des Moines, Ia. Contract Awarded. $1,694,284. Mfg. PLANT, DES MOINES, IA. Solar Aircraft Co., 2200 Pacific Hy., San Diego, Calif. CD 2/16.

Morehead Constr. Co., 217 Dows Bldg., Cedar Rapids, Ia. Contract Awarded. $525,200. COMMUNICATION bldg. at University of Iowa, IOWA CITY, IA. State Bd. Educ., 1007 Des Moines St., Des Moines, Ia. Bids Apr. 4.

▲ Celanese Corp. of America, Bishop, Tex. Own Forces. Approx. $3,502,000. chcemical PLANT expansion, BISHOP, TEX. CD 4/11.

FAR WEST

LOW BIDDERS—BUILDINGS

▲† McPahil Eng. Co., 2904 Alaska St., Tacoma, Wash. Low Bidder, $1,305,168, Sch. 2; John H. Sellen Constr. Co., 228 9 Ave. N., Seattle, Wash., $442,044, Sch. 1 and 3, bldgs. and utilities at Army Proj. Inv. No. 51-140, NORTH RICHLAND, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids Apr. 24. CD 4/23, under LB.

▲ Viesko & Post, Box 69, Salem, Ore. Low Bidder, $2,038,700. 4 story, 150x240 ft. rein.con., steel COURT HOUSE, SALEM, ORE. Marion Co., Court House, Salem, Ore. Bids Apr. 26. CD 4/13.

CONTRACTS—HEAVY CONSTRUCTION

▲Duncanson-Harrelson Co., & Stolte, Inc., 530 W. Cutting Blvd., Richmond, Calif. Contract Awarded. $1,631,057. Bascule bridge across San Leandro Bay between Bay Farm Island and Alameda, Alameda Co., CALIFORNIA. State Div. Hys., P. Wks. Bldg., Sacramento, Calif. Bids Apr. 18, awarded Apr. 26. CD 4/26, under LB.

Guy F. Atkinson Co., 22233 S. Santa Fe Ave., Los Angeles, Calif. Contract Awarded. $758,221. 13 span

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1021 ft. Moreno Blvd. Bridge, 48 ft. roadway, SAN DIEGO, CALIF. San Diego Co. Flood Control Dist., Civic Center, San Diego, Calif. Bids Apr. 19. CD 4/26, under LB.

CONTRACTS—BUILDINGS

▲ Biltmore Homes, Inc., 9434 Long Beach Blvd., South Gate, Calif. Contract Awarded. $3,573,214. 458 frame stucco DWELLINGS in Tract 18214, COMPTON, CALIF. Residence Mortgage Corp., 9434 Long Beach Blvd., South Gate, Calif. Southwest Drafting Service, 2724 W. Florence St., Los Angeles, Calif., archts.

Laurel Lambert Corp., 9244 W. Olympic Blvd., Beverly Hills, Calif. Owner Builds. $906,500. 114 frame, stucco DWELLINGS in Tract 17186, WHITTIER, CALIF.

▲ Parkwood-Colima Co., 739 N. Highland Ave., Los Angeles, Calif. Contract Awarded. $1,211,000. 173 frame, stucco DWELLINGS in Tract 16683, WHITTIER, CALIF. Halper Constr. Co., 739 N. Highland Ave., Los Angeles, Calif. CD 9/12/50.

ALASKA

LOW BIDDERS—HEAVY CONSTRUCTION

▲† Kuney-Johnson Co., 235 4th Ave., N., Seattle, Wash., Low Bidder. $1,120,000, est. $1,098,429, gymnasium and indoor training facility at Ladd Air Force Base land at Eielson Air Force Base, Inv. No. 595-507-51-76, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids Apr. 24. CD 3/28.

LOW BIDDERS—BUILDINGS

▲† Haddock Engineers, Ltd. & Assoc., Insurance Bldg., Seattle 4, Wash., Low Bidder. $2,393,000, refrigerated WAREHOUSE and ADMIN. BLDG., Inv. No. 595-507-51-77, FORT RICHARDSON, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids Apr. 24. CD 3/29.

▲† Morrison-Knudsen Co. and Peter Kiewit Sons Co., 1300 Aloha St., Seattle, Wash., Low Bidder. $1,949,000, est. $1,890,638, indoor TRAINING FACILITY, Bldg. Inv. No. 595-507-51-80, FORT RICHARDSON, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids Apr. 24. CD 3/28.

▲† Valle-Sommers Constr. Co., 417 S. Ave., W., Seattle, Wash., Low Bidder. $2,907,717, est. $2,442,932, engineer, quartermaster, signal repair, combined and freight equipment SHOPS, Inv. No. 595-507-51-70, FORT RICHARDSON, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids Apr. 27. CD 4/4.

CONTRACTS—BUILDINGS

▲† J. C. Boespflug Co. & Assoc., 2912 4 Ave., S., Seattle, Wash. Contract Awarded. $2,093,521. 3 story reinforced concrete APARTMENTS, Inv. No. 49-228 (a), ANCHORAGE, ALASKA. Bureau of Indian Affairs, Dept. Interior, Interior Bldg., Wash. 25, D. C. Bids Apr. 19. CD 4/26, under LB.

▲ Lewis Constr. Co., Lewis Bldg., Seattle, Wash., Day Labor. Approx. $3,000,000. 6 buildings with 224 one bedroom APARTMENTS for S & S Apartments, with 1 story 45,000 ft. shopping center, ANCHORAGE, ALASKA. CD 4/27.

▲† Haddock Engineers, Ltd., Insurance Bldg., Seattle 4, Wash. Contract Awarded. $5,786,000, est. $5,848,032, composite bachelor HOUSING, service and recreation center, Inv. No. 595-507-51-18, WHITTIER, ALASKA. U. S. Eng., APO 942 c/o PM, Seattle, Wash., and Anchorage, Alaska. Bids Mar. 27. CD 4/2, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

▲ Nova Scotia—TUNNEL—Bids Asked—Dominion Steel & Coal Corp., Sydney, 3,600 ft. 28 ft. wide, semi-circular concrete and steel-lined tunnel, Sydney, $5,000,000. Plans deposit $200.

▲ Nova Scotia—TUNNEL—Bids Asked—Dominion Steel & Coal Corp., Sydney, 10,665 ft. long, 19 ft. wide, semi-circular concrete and steel-lined tunnel, Glace Bay, $5,000,000. Plans deposit $200.

LOW BIDDERS—HEAVY CONSTRUCTION

Evans, Coleman & Evans, Ltd., foot of Columbia St., McLennan, McFeeley & Prior, Ltd., 99 E. Cordova St., Dominion Bridge Co. Ltd., 2450 Boundary St., all Vancouver, B. C., Low Bidder. $755,895, supply, delivery of about 4800 tons of billet steel and reinforcing bars of various sizes, required in connection with the constr. of Granville Street Bridge, VANCOUVER, B. C. Cty. City Hall, Vancouver, B. C. CD 2/23/49.

CONTRACTS—HEAVY CONSTRUCTION

Poole Constr. Co., Ltd., 10503 109 St., Edmonton, Alta. Contract Awarded. $229,200. Contr. 53,c. conc. sidewalk construction; Fort Constr. Co., Edmonton, Alta., $90,582, Contr. 51, c. conc. curb, EDMONTON, ALTA. City, Civic Block, Edmonton, Alta. Bids Mar. 2, awarded Apr. 16. CD 3/15.

CONTRACTS—BUILDINGS

W. B. Sullivan Constr. Ltd., 30 Eloor St. W., Toronto, Ont. Contract Awarded. $300,000, 30 ft. high 130x220 ft., steel food processing PLANT, NEW TORONTO, ONT. Campbell Soup Co., New Toronto, Ont. Bids Apr. 9, awarded Apr. 21. CD 3/30.

▲ Foundation Co. of Ontario Ltd., 1220 Bay St., Toronto, Ont. Contract Awarded, three 3 story, steel frame, concrete PLANT bldgs. near Horner Ave., TORONTO, ONT. Canadian Steel Improvement Ltd., Toronto, Ont., subsidiary Steel Improvement and Forge Co., 970 E. 64 St., Cleveland, Ohio, U. S. A. Awarded Apr. 23. CD 4/18.

▲ Foundation Co. of Ontario Ltd., 1220 Bay St., Toronto, Ont. Contract Awarded. Approx. $10,000,000, superstructure 6 story, 83x90 ft., NURSES RESIDENCES, TORONTO, ONT. Hospital for Sick Children, University Ave., Toronto, Ont. Bids Apr. 2, awarded Apr. 24. CD 3/28.

▲ G. Levinschi, 3380 Ridgeway Ave., Montreal, Que. Career Builds, $1,500,000, concrete, masonry APARTMENT BLOCKS, on Cote des Neiges Rd., MONTREAL, QUE. Greenspoon & Assocs., 4151 W. Sherbrooke St., Montreal, archts.

▲ T. C. Construction Co., 3100 Belanger St., Montreal, Que. Contract Awarded, $1,000,000 100 one story concrete, brick DWELLINGS on 31 and 35 Aves. in Resemont Ward, MONTREAL, QUE. Continental Housing Corp., 572 Syn Life Bldg., Montreal, Que. P. Paquette 5100 Belanger St., Montreal, Que., archt.

Newton Constr. Co., Ltd., 150 Victoria St., Sherbrooke, Que. Contract Awarded. $555,000. 2 story, basmt., 84x197 ft. 12x16/7 ft. SCHOOL, MAGOG, QUE. Protestant School Bd., P. O. Box 450, Magog, Que. CD 4/25, under LB.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Pittsburg—City, City Hall water treatment plant, reservoir, pipe lines, $695,400 E. L. O'Hara, City Hall, city engr. CD 11/21/49.

Colo., Lakewood—Lakewood Water Co., water sys. imprvs., $500,000.

▲ Colo., Pueblo—Pueblo North Side Water Sys., bonds voted $1,500,000 bonds. Apr. 10, expansion water facilities, reservoir site purchase, pumping station, Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. CD 3/27.

▲ Mo., Kansas City—City Water Dpt., City Hall, Zone 6 voted $2,225,000 bonds Mar. 27, new intake, pumping station at WW., Clay County, Turkey Creek pumping station imprvs., Burns & McDonell, 9S and Troost St., Kansas City 5, Mo. and Black & Veatch, 4706 Broadway, Kansas City 2, Mo., engrs. CD 4/3.

N. C., Shelby—City, Shelby, WW imprvs., changes and addns. to raw water and filtered water supply sys., incl. 4 m.g.d. filter plant, J. N. Pease & Co. Inc., 1194 E. 5 St., Charleston, consult. engrs. CD 4/6.

Tenn., Chattanooga—City, City Hall, filtration plant on Riverside Dr. $450,000.

Tex., Forney—City, water supply from Lavon Dam. $250,000.

Tex., Houston—Harris County Water Control & Imprv. Dist. 22, Court House, voted bonds, WW extens., imprvs. and rehabilitation, except supply, $375,000; water supply wells, $75,000, in Sunnyside Community. CD 4/12.

Tex., Royse City—City, water supply from Lavon Dam, $225,000.

▲ Tex., Stamford—City, c/o mayor, Stamford, voted bonds Mar. 23, construct lake on Paint Creek near Scotts Crossing for new water supply for city. $1,500,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 9/16/49.

Man., Swan River—Town, Geo. Sait, mayor, installing water works system. Approx. $200,000.

Ont., Niagara Falls—City, Niagara Falls, auxiliary watermains $412,000. CD 1/26.

Ont., St. Catherines—St. Catherines Waterworks Comn., St. Catherines, expansion of waterworks to incl. 6 extra filter beds, addnl. reservoir, $500,000. G. F. Lamson, city engr.

SEWERS, WASTE DISPOSAL

Calif., Eureka—City, City Hall, constr. Murray St. sewage treatment plant, $476,158. CD 7/25/49.

Colo., Arvada—Clear Valley Santitation Dist., sewage disposal plant, sewer lines, $270,000, Ripple & Howe, 426 Cooper Bldg., Denver, consult. engrs.

Colo., Englewood—South Englewood Sanitation Dist., sewage collection sys. and disposal plant, $420,000, Dale Rea, Boston Bldg., Denver, consult. engr.

N. Y., Johnstown—City, sewage treatment plant, $350,000. CD 2/8/45.

N. Y., New Rochelle—County Comrs., White Plains, addnl. sewage facilities in New Rochelle Sanitary Sewer Dist., $429,000.

O., Youngstown—Mahoning Co. Comrs., Court House, storm sewers, Boardman Park ditch imprvs., Park and Glenwood branches, $208,500. Samuel C. Gould Jr., county engr.

Pa., Pittsburgh—Penn Twp. Comrs. Frankstown Rd., sewage disposal plant at Penn Twp. $500,000. Alex Hutchinson, 608 South Ave., Wilkinsburg, Pa. engr.

Pa., Punxsutawney—Punxsutawney Boro, Boro Bldg., sewage treatment plant, $250,000. Gannett, Fleming, Corddry & Carpenter, Inc., 600 N. 2 St., Harrisburg, engrs. CD 8/22/46.

Pa., Sharon—City, Sharon, $225,000 bond election July 24 garbage disposal plant. CD 5/31/50.

Tex., Houston—Harris County Water Control & Imprv. Dist. 22, Court House, voted bonds, storm sewers, $100,000; sanitary sewer sys. extens., imprvs. rehabilitation, $325,000, in Sunnyside Community. CD 4/12.

BRIDGES

▲ La., New Orleans—City, City Hall, South Broad overpass, $4,000,000. CD 2/28.

▲ Mo., Kansas City—City, Jas M. Nolan, chn., Pub. Imprvs., City Hall, Zone 6, Sixth St. trafficway, $4,000,000.

▲ N. Y., New York—New York Central System, G. A. Noren, ch. engr., 466 Lexington Ave., New York, Zone 17, 4 track vertical lift bridge over Harlem River at E. 133 St. $10,000,000.

North Carolina—State Hy. and Pub. Wks Comn., Raleigh, Catawba Co.—bridge over Catawba River on Hy. 16, at Newton. $500,000.

O., Akron—City, Marvin L. Davis, Service Dir., Municipal Bldg., replace or repair 42-year-old Mill St. bridge, Howard, Needles, Tammen & Bergendoff, 7400 Wilson Rd., Kansas City, Mo. consult. engrs. Chester Schneider, City bridge engr.

O., Dayton—City Comn., Patterson-Riverside bridge with 4 to 6 lane hy. along exten. Riverside Drive, running north from Emmett St. to Cannon St. on widn. Stillwater Ave. and from Cannon St. to Great Miami Blvd. along the river levee, 6 lanes from bridge north to Herman Ave., 4 lanes from Herman to Great Miami Blvd. Karl Woditsch, ch. engr. CD 8/3/45.

O., East Liverpool—Ohio Bridge Comn., Columbus, imprv. approaches to bridge over Ohio River. Mojeski & Masters, State St. Bldg., Harrisburg, Pa., consult. engrs.

O., Youngstown—Mahoning Co. Comrs., Court House, reconstr. floor of Credit Mobilier Bridge, $19,000; approaches South Ave. Bridge, $30,000; bridge in Hubbard Rd. over Crab Creek, $28,500, reconstr. Market St. Bridge, $500,000; bridge and approaches in Mill Creek known as Glenwood Ave., $210,000; culvert imprvs. in county, $70,000. Samuel C. Gould Jr., county engr. CD 3/16/44.

Oklahoma—State Hy. Dpt., Capitol, Oklahoma City, McCurtain Co.—bridge over the Red River south of Idabel, $660,000. S. K. McClelland, c/o owner, engr.

STREETS AND ROADS

Ariz., Phoenix—City, City Hall, widn., paving 2 mi. sector to St., $329,491, R. Gail Baker, City Hall, city engr. CD 2/1/46.

Florida—State Rds. Dpt., Tallahassee,

Clay Co.—regrade, pave Rd. 218 between Middleburg and Rd. 200, $130,000.

Dixie Co.—grade, pave Rd. 55 from Rd. 359 to 3 mi. west of Cross City, 8.5 mi., $450,000. S. P. Turnbull, hy. engr.

▲ Ohio—State Hy. Dpt., Columbus, freeway from Cleveland to Columbus to Cincinnati. $300,000,000. Arthur Stevens, in charge of route survey. CD 2/23/45.

O., Youngstown—City, widen 13 block stretch of South Ave. from Mabel Ave. to King St.; 13 block stretch of South Ave. from Indianola Ave. to Market St., from 30 to 54 ft., $694,000, James C. Ryan, city engr.

Tex., San Antonio—City, City Hall, Military Plaza, general rehabilitation of various paved and unpaved streets, $250,000. W. W. Toxey, city engr. CD 12/19/49.

Wash., Seattle—City, County-City Bldg., Zone 4 resurf. Dexter Ave. from 4 Ave. N. to Mercer St. and other streets, $420,000; paving 21 Ave. S. W. et al, $102,963. R. W. Finke, city engr.

▲ Alberta—Dpt. Public Wks., Edmonton, Alta. (Prov. Govt.), work on the Trans-Canada Hy. between Medicine Hat and Bassano. Approx. $4,000,000. CD 12/3/43.

EARTHWORK, WATERWAYS

▲† Indiana—U. S. Eng., 520 Merchandise Mart, Chicago 54, Ill., harbor at Burns Ditch on Lake Michigan for public use and steel mill establishment. $3,500,000.

Iowa—State Water Conservation Bd., 914 Grand St., Des Moines, Lizard Lake imprvs., Pocahontas Co. $50,000; Brown's Lake imprvs., Woodbury Co., $40,000; constr. new lake, Montgomery Co., $175,000.

▲ North Carolina—Virginia Electric & Power Co., 7 and Franklin Sts., Richmond, Va., dam and power house on Roanoke River, $3,000,000.

AIRPORTS

Ark., Little Rock—RUNWAY—Little Rock Airport Bd., Little Rock extending NE/SW runway at Adams Field, and other work $750,000. L. A. Henry, Pyramid Bldg., Little Rock, consult. engr. CD 8/18/49.

Pa., Morton—HANGAR—Piasecki Helicopter Corp., 100 Woodland Ave., plans by Carroll, Grisdale & Van Alen, 204 W. Rittenhouse Square, Phila., flight operation hangar, $700,000.

▲† Wash., Whidbey Island—AIR STATION, etc.—Pub. Wks. Officer, Thirteenth Naval Dist., 1611 W. Wheeler St., Seattle, plans by Naramore, Bain, Brady & Johanson, 904 7 Ave., Seattle, naval air station bldg., $2,000,000; L. Bouillon & Assocs., 1411 4th Ave. Bldg., Seattle 1, Wash., consult. engr., 8,000 ft. long and 200 ft. wide, jet plane runway, $4,432,000. Gardner & Hitchings, Inc., C. C. Arnold and R. C. Smith, Arctic Bldg., Seattle 4, Wash., consult. engrs. CD 4/5/45.

† Alaska—MAINTENANCE DOCK—U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, plans by

(Continued on page 97)

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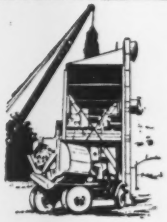

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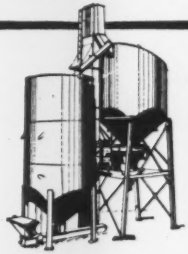

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(Continued from page 94)

Barrett & Logan, 1940 S.W. 4th Ave., Portland, Ore., VHB maintenance dock, Eielson Air Force Base. $600,000. CD 11/27.

▲ Man., MacDonald—RUNWAYS—Defence Constr. Ltd., Kensington Bldg., Winnipeg, runways at Royal Canadian Air Force Base, $2,000,000. K. F. Hurst, c/o owner, engr.

▲ Man Portage La Prairie—TRAINING SCHOOL—Defence Constr. Ltd., Hunter Bldg., Ottawa, Ont., advanced flying training school at Macdonald airport, Approx. $5,500,000.

▲ Man., Winnipeg—HOUSING—Central Mortgage & Housing Corp., Kensington Bldg., Winnipeg, housing development near Stevenson Air Field for Royal Canadian Air Force Base, $1,000,000. K. F. Hurst, Defence Constr. Ltd., Kensington Bldg., Winnipeg, engr.

LATIN AMERICA

Mexico, Chihuahua—Eloy S. Ballina and Assoc., Domicilio Conocido, Chihuahua City, Mexico, plans cellulose factory. $17,350,000.

▲ Mexico, Minatitlan—Mexican Gulf Sulphur Co. and subsidiary Mexican Sulphur Co., Mexico City and Minatitlan, Mexico, plans sulphur mining and production facilities, near here. $1,875,000.

▲ Mexico, Mexicali—Mexican Govt., Srias. de R.H., Paseo de la Reforma, 69, Mexico City, plans deep well-chain irrigation. $7,000,000.

Mexico, Mexico City—Hojalata y Lamina, S.A., Cipres, 280, Mexico City, plans iron-steel products factory. $500,000.

Mexico, Mexico City—Municipal Govt. (Lic. Fernando Casas Aleman, mayor) Palacio Municipal, Mexico City, plans 4,000 seat music theatre. $500,000.

Mexico, Mexico City—Remington Rand, S.A. (Mario Soni, mgr.) Madero, 55, Mexico City, plans typewriter factory. $750 000.

Mexico, Piedras Negras—National Railways of Mexico, Ing. Manuel R. Palacios, genl. mgr., Bolivar 19, Mexico City, plans passenger-freight station. $850,000.

Mexico, Quadalajara—Municipal Govt., Palacio Municipal, Guadalajara, Jalisco, Mexico, plans five public markets. $1,000,000.

PUBLIC BUILDINGS

Ark., Fort Smith—HIGH SCHOOL—Fort Smith Public Schools, c/o J. W. Ramsy, supt., 400 N. 15 St., plans by Bassham & Wheeler, Mercantile Natl. Bank Bldg., Junior-High School. $649,400. CD 2/23.

▲ Ark., Little Rock—SCHOOLS—Pulaski Special School Dist., c/o J. L. Wastson, supt. and secy., Little Rock, plans by Wittenberg, Delony & Davison, 402 Pyramid Bldg., Little Rock, 19 schools in county and addns. to others. $1,000,000.

Calif., Atwater—SCHOOL—Mitchell Union Elementary School Dist., Atwater, school. $581,000.

Calif., Eureka—HOUSING—City, City Hall, plans by Frank T. Georgeson, 537 G St., 100 low rent housing units, Proj. Cal. 25-1. $682,000.

▲ Calif., Long Beach—SCHOOLS—Long Beach City Bd. Educ., 715 Locust Ave., plans by Kenneth S. Wing, 30 Linden Ave., Alexander Hamilton Junior High School, $1,350,000; John Marshall Junior High School, $1,250,000. Van Alsteine & McLean, 3916 Mytle Ave., Long Beach, consult. engr. CD 11/18/48.

▲† Calif., San Francisco — RADIOLOGICAL — Twelfth Naval Dist., Room A-110, Federal Office Bldg., construct prefabricated steel frame bldg., conversion of bldgs. for Naval Radiological Bldg. at Hunters Point. $1,300,000. Leland S. Rosener, 233 Sansome St., structural engnr. CD 2/1.

Colo., Brighton—SCHOOL—School Dist. 27, Adams Co., bond election May 7, Junior High School addn., remodeling existing high school into a Junior High School, high school, $936,000. Atchison & Klovestrom, 1254 Monaco Parkway, Denver, consult. engrs. CD 12/26/48.

Colo., Glenwood Springs and Newcastle—SCHOOLS—Garfield Co. School Dist., Glenwood Springs, bond election in May, high schools in Glenwood Springs and Newcastle. $760,000.

Colo., Pueblo—SCHOOL—School Dist. 60, Pueblo Co., plans by Walter DeMordaunt, 738 Thatcher Bldg., 2 story, brick North Side Junior High School. $850,000.

Conn., Rocky Hill—SCHOOL—Town, Bd. Educ., plans by Keith Sellars Heine, 71 Oxford St., Hartford, Junior High School. $650,000.

Conn., Storrs—AUDITORIUM—State P. Wks. Comr., State Office Bldg., Hartford, plans by Frederick C. Teich, 252 Asylum St., Hartford, 2,300 seating auditorium at University of Connecticut, $900,000. CD 1/19/49.

Idaho, Boise—SCHOOL—School Bd., 1207 Fort St., plans by Wayland & Fennell, Idaho Bldg., and Hummel, Hummel & Jones, 14 and Idaho Sts., Boise, Junior High School, $785 000. CD 12/6.

▲ Ill., Chicago—HOUSING—Chicago Housing Auth., 609 S. Dearborn St., Zone 16, plans by Naess & Murphy, 80 E. Jackson St., Zone 14, addn. to existing housing Project. (Altgeld Gardens) 130 St. and C.E. and I.R.R. R.R. $1,000,000, plans by Lobel Schlossman & Bennett, 333 N. Michigan St., Zone 1, 300 unit apartments at 108 and Oglesby Sts. $2,000,000. CD 9/7.

▲ Ind., Charlestown—SCHOOL—Charlestown Twp., Charlestown, plans by McQuire & Shook, 1401 Fletcher Trust Bldg., Indianapolis, 1 and 2 story, brick, high and grade school. $1,000,000.

Ia., Muscatine—HOSPITAL—Muscatine co., Plans by Morgan-Gelatt & Assoc., Burlington, hospital. $500,000. CD 10/2/47.

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Ia., Sioux City—SCHOOL—Bd. Educ., 1221 Pierce St., $600,000 bond election May 7, school, $600,000. CD 16/6.

Kan., Emporia—EDUCATIONAL BLDG.—State Bd. Regents, Topeka, plans by C. L. Marshall, Topeka, secondary educational bldg. at Emporia State College, $540,000.

La., Alexandria—SCHOOL—Rapides Parish School Dist., c/o E. S. Aiken, supt., plans by Barron, Heinberg & Bracato, Alexandria, negro high school. $644,700.

▲ Mass., Boston—HOUSING—City of Boston Housing Auth., 230 Congress St., plans by Arland A. Dirlam, 673 Boylston St., 645 units housing Proj. PHA Mass. 2-15, Albany and Harrison Aves., $7,250,000; plans by Thomas F. McDonough, 25 Huntington Ave., 732 units housing Proj. PHA 2-19, Bromley Park, Roxbury, $10,250,000.

▲ Mass., Chelsea—HOUSING—City of Chelsea Housing Auth., City Hall, plans by Kelly & Gruzen, 73 Tremont St., Boston, 3 story, bsmt., 95 units, rein.-con., masonry housing, Crescent St. at B. & M. R. R., $1,000,000, Wm. Davies, 73 Tremont St., Boston, assoc. archt.

Mass., Holyoke—INFIRMARY—City, Pub. Welfare Dpt., City Hall, infirmary, Ingleside St. $850,000.

▲ Mass., Reading—SCHOOL—Town, supt. schools, plans by Adden, Parker, Clinch & Crimp, 177 State St., Boston, high school, $2,400,000. CD 12/5.

Mich., Ann Arbor—RESEARCH—Bd. Regents University of Mich., plans by C. L. T. Gabler, 924 Hammond Bldg., Detroit, brick, steel engineering research bldg., $800,000.

Minn., Granite Falls—SCHOOL—Bd. Educ., M. S. Orwell, clk., plans by Pass & Rockey, Mankato, grade school, $500,000.

Neb., Chadron—DORMITORY—State Normal Bd., Capitol Bldg., Lincoln, dormitory at Chadron State Teachers College. $500,000.

Neb., Kearney—DORMITORY—State Normal Bd., Capitol Bldg., Lincoln, dormitory at Kearney State Teachers College. $500,000.

Neb., Lincoln—DORMITORY—University of Nebraska, City Campus, Lincoln, dormitory. $500,000. CD 3/11/48.

Neb., Peru—DORMITORY—State Normal Bd., Capitol Bldg., Lincoln, dormitory at Peru State Teachers College. $500,000.

Neb., Sidney—LIGHT and POWER PLANT—City, light and power plant additions, extensions. $500,000. Fulton & Cramer, 922 Trust Bldg., Lincoln, consult. engrs. CD 3/6.

Neb., Wayne—DORMITORY—State Normal Bd., Capitol Bldg., Lincoln, dormitory at Wayne State Teachers College. $500,000.

▲ O., Shelby—GENERATOR—City, City Hall, installing 75,000-kilowatt turbine generator at municipal power plant. $1,000,000. Emery, Marker & Emery, Toledo Trust Bldg., Toledo, consult. engrs.

O., Tipp City—POWER PLANT—City, Russell Blank, supt. of utilities, Tipp City, improv. municipal power plant, incl. new diesel units. $600,000.

Okla., Norman—SCHOOL—Norman Independent School Dist., c/o J. D. Jones, supt., plans by Perkins & Will, 309 W. Jackson St., and Caudill, Rowlett & Scott, College Station, Tex., assoc. archt., school, Okla. 51-C-11-A. $749,486. CD 10/9.

▲ Okla., Oklahoma City—HIGH SCHOOL—Oklahoma City Independent School Dist. No. 89, c/o N. L. George, asst. supt. 400 N. Walnut St., plans by Wright & Selby, 212 Hightower Bldg., SW Junior-High School, $1,928,179. CD 5/2/49.

Pa., Aliquippa—HIGH SCHOOL—Consolidated School Dist., of Raccoon, Hopewell and Independence Twps., Aliquippa, plans by B. J. McCandless, 239 4th St., Ellwood City, Junior High School Hopewell Twp. $850,000. CD 6/2.

Pa., Harrisburg—SCHOOL—Harrisburg School Bd., 121 Chestnut St., plans by W. L. Murray, 1600 N. 2nd St., 750-pupil Downey School, Calder and Monroe Sts. $750,000. CD 11/14.

▲ Pa., New Castle—SCHOOLS—School Bd., New Castle, plans by Thayer & Co., 408 Greer Bldg., New Castle, 3 schools. $3,960,000.

▲† S. D., Lake Andes—SCHOOL—U. S. Eng., 1709 Jackson St., Omaha, Neb., school, $1,000,000.

Tex., Corsicana—HOUSING—Corsicana Housing Auth., Corsicana plans by Boese & Harkrider, T & P Passenger Bldg., Fort Worth, 114 housing units. $912,000. CD 10/5/49.

▲ Tex., Dallas—HOUSING—Dallas Housing Auth., 2525 Lucas Dr., Dallas, plans by Howard R. Meyer, 2907 Maple St., Tex. 9-7, housing project, $850,000; plans by Tatum & Quade, 2812 Fairmount St., Tex. 9-9, housing project, $1,250,000. CD 12/2/49.

▲ Tex., Orange—HOSPITAL—City, and Orange Co., c/o C. O. Chandler, Orange, 200-bed hospital. $1,500,000. J. M. Morris, c/o C. O. Chandler, Orange, consult. engr.

▲ Tex., Pasadena—SCHOOL—Pasadena Public Schools, c/o V. W. Miller, supt., Box 71, plans by Loyd & Morgan, 4605 Montrose Blvd., Houston, combined elementary-Junior High School. $1,246,000. CD 11/17/49.

▲ Va., Arlington—SCHOOLS—Arlington Public Schools, 2732 Wilson Blvd., voted $4,875,000 bonds, first unit of a new Junior High School, Rhees Burkett, 1223 Connecticut Ave., N.W. Wash., D. C., archt; elementary facilities and addns. to existing elementary bldgs., McLeod & Ferrara, 1741 DeSales St., N.W. Wash., D. C., archts.

▲ Va., Staunton—SCHOOLS—City School Bd., Staunton, Robert E. Lee high school. $750,000. West End grade school, $600,000.

Wash., Colfax—SCHOOL—School Bd., plans by Geo. M. Rasque & Son, Washington Trust Bldg., Spokane, 1 story, frame school, $600,000. CD 4/16/-

Wash., Kelso—SCHOOL—School Bd., Kelso, voted bonds, Junior High School, $850,000. Wolff & Phillips, Pearson 4th Ave. Bldg., Portland, Ore., archts. CD 10/12.

Wyo., Casper—HOSPITAL—Natrona County Memorial Hospital, Casper, plans by Fisher & Fisher, Denver National Bldg., Denver, Colo., 200 bed hospital. $600,000.

▲ Alaska, Anchorage—HOUSING—Alaska Housing Auth., Juneau, plans by Miller & Ahlson, 1410 Hubbel Pl., Stattle, Wash., 150 unit housing project. $2,000,000. CD 12/2/49.

▲† Alaska, Kodiak—HOUSING—Bureau Yards and Docks Annex Navy Dpt., Arlington, Va., 410-unit housing project for naval and civilian personnel at Naval Base. $5,000,000.

▲ Que., Montreal—HOSPITAL—Jewish General Hospital, 3758 Cote Ste. Catherine Rd., plans by McDougall & Assocs., 1235 McGill College Ave., remodeling part existing hospital and addn. $2,000,000. H. Jasen, 1410 Guy St., engr.

▲ Que., Montreal—HOSPITAL—Children's Memorial Hospital, Dorchester St. and Atwater St., Montreal, plans by McDougall, Smith & Flemming, 1235 McGill College Ave., Montreal, private patients' pavilion alterations, $345,000; out-door department and 150-bed hospital unit, $1,850,000; nurse's home on Essex St., $1,080,000; tunnel connecting main units, $1,000,000. Total Est. $4,275,000. McDougall & Friedman, 1235 McGill College Ave., Montreal, Que., engrs. CD 1/12/45.

COMMERCIAL BUILDINGS

Ala., Birmingham—COMMUNITY CENTER—Jewish Community Center, c/o Warren, Knight & Davis, archts., Protective Life Bldg., community center, $500,000.

Calif., Barstow—DWELLINGS—Meyer-Nash Corp., 652 Hollywood Way, Burbank, 64 frame, stucco dwellings in Tract 3509. $590,000.

Calif., Los Angeles—DWELLINGS—Woodman Park, Inc., 5658 W. 3 St., Los Angeles, 105 frame, stucco dwellings, $802,290.

Calif., Sacramento—HOTEL REMODELING—Hotel Senator, Inc., 12 and L Sts., plans by Leonard Starks, 416 Native Sons Bldg., remodeling Hotel Senator, $800,000.

▲ Calif., San Francisco — HOSPITAL — Permanente Foundation, Broadway and MacArthur Blvd., Oakland, plans by Wulff & Phillips, Pearson-Fourth Ave. Bldg., Portland, Ore., 210-bed hospital at Geary, O'Farrell and St. Joseph Aves., $2,300,000.

▲ Calif., San Francisco—HOSPITAL ADDN.—St. Luke's Hospital, Valencia and Army Sts., San Francisco, plans by Skidmore, Owings & Merrill, 1 Montgomery St., San Francisco, 52 bed St. Luke's Hospital addn., $2,300,000.

Fla., Miami Beach—CHURCH—All Souls In the Palms Church c/o John E. Petersen & Frank H. Shuflin, archts., 206 Roper Bldg., Miami, church, $500,000.

Ga., Augusta—ADMINISTRATION BLDG.—Medical College of Georgia, Augusta, administration bldg. $600,000

Ill., Belleville—CHURCH—Blessed Sacrament Catholic Parish, Rev. Louis F. Ell, pastor, 8901 W. Main St., plans by Albert M. Goedde, 1452 A State St., East St. Louis, colonial-type brick, rein.-con. church. $400,000-$500,000.

Ia., Fort Madison—HOSPITAL—Sacred Heart Hospital, Fort Madison, plans by Morgan-Gelatt & Assoc., Burlington, hospital. $500,000.

▲ Ind., Indianapolis—HOUSING—Leo R. Alhand, 5815 N Delaware St., Indianapolis, Zone 20, 1,000 dwelling units housing project, 25 apartment bldgs. 10 to 16 Sts., West to Millburn St., all 2 story, bsmt., brick, rein.-con., Paul I. Cripe, Inc., Lemcke Bldg., Indianapolis, 4, Ind., consult. engr.

▲ Mass., Arlington—SHOPPING CENTER—Owner, c/o Nathaniel Hamlen, trustee, 11 Pemberton Square, Boston, plans by Sumner Schein, 333 Washington St., Boston, 400,000 sq. ft. shopping center incl. 15 stores, Concord Turnpike, East Arlington, $2,500,000.

▲ Mich., Detroit—HOSPITAL—Herman Kiefer Hospital, Taylor and Hamilton Sts., brick, steel tuberculosis hospital addn., $2,000,000.

▲ N. Y., Brooklyn—APARTMENT—Milton Fox, 885 Flatbush Ave., plans by Kavy & Kavovitt, Inc., 44 Court St., Zone 2, 6 story apartment at 1232 Avenue Z and 2602 E. 13 St. $1,152,000.

O., Dayton—CHURCH—Westwood Baptist Church, Rev. John W. Kurtz, 544 Anna St., church near 3717 Fairbanks St. incl. and educational unit. $500,000.

O., Sandusky—HOSPITAL—Bd. Trustees, Memorial Hospital, John F. Kerchner, chn., Sandusky hospital on 10 acre site. $750,000.

Tex., Dallas—APARTMENT—W. H. Cothrum, Co., 2115 E. Field St., 122 apartment units for Negroes, in Central Expressway area off Hatcher St. $854,000.

▲ Tex., Freeport — DWELLINGS — Lakewood Gardens, Inc., c/o Melvin A. Silverman, 6205 Almeda Rd., Houston, plans by Lloyd & Morgan, 4605 Montrose St., Houston, 100 frame type dwelling units, concrete and post fdn., $500,000; 50 frame and cedar shakes duplexes, concrete slab fdn., central heating, $600,000, at Lake Jackson.

▲ Tex., Houston—DWELLINGS—Jess Little, 2902 Midlane St., plans by Charles W. Oliver, 2626 Westheimer St., 12 two story masonry dwellings along new South Braeswood Blvd. in Linkwood area, $600,-

(Continued on page 100)

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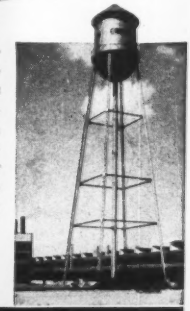

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(Continued from page 98)

000; 12 one and two story masonry dwellings, concrete slab and beam fdn., furnace heating immediately south of Linkwood, $480,000.

▲ Tex., Houston—DWELLINGS—J. S. Norman Building Corp., 4815 Richmond Rd., construct number of frame and partial masonry type dwellings, various locations, $350,000; Proj. 1, 50 frame dwellings, Northcrest St., concrete slab fdn. $450,000; Proj. 2, 30 frame dwellings, concrete slab fdn. in an extens. of Mentridge St. $310,000; Proj. 3, 34 frame dwellings, concrete slab fdn., various sites, $340,000.

Tex., San Antonio—GIRLS SCHOOL—Sisters of Divine Providence, c/o Lady of The Lake College, 24 and Durango Sts., girls school. $500,000.

▲ Tex., Houston—DWELLINGS—The Fairworth Co., 1932 North Blvd., plans by Edward Bodet, 3233 Louisiana St. Proj. No. 1, 75 semi-permanent type dwellings, $975,000; Proj. 2, 200 dwellings, $1,200,000; Proj. 3, 110 masonry dwellings, concrete slab fdn. $1,320,000; Proj. 4, 85 semi-permanent type dwellings, $1,020,000 in 108-acre tract in extens. of Sec. 3, Lamar Terrace.

INDUSTRIAL BUILDINGS

▲ Calif., Merced—CANNERY—Filice & Perrelli Canning Co., S. 10 and Hall Aves., Richmond, cannery bldg. at 13 St. W St. in Merced. $1,000,000. Mac D. Perkins, 110 Sutter St., San Francisco, structural engr.

▲ Ga., Jesup—MILL—C. C. Mengel Co., 2122 Dumesnil St., Louisville, Ky., paper mill. $10,000,000.

Ga., Summerville—MILL—Bigelow-Sanford Carpet Co., Summerville, mill addn., $500,000.

▲ Ind., Newburgh—GENERATING STATION—Southern Indiana Gas & Electric Co., Hulman Bldg., Evansville, steam generating station with 40,000 kilowatt capacity on Ohio River above here, $12,000,000.

▲ Ill., Wood River—GENERATING PLANT—Illinois Power Co., C. A. Steinhauser, div. mgr., 16 E. Lorena St., construct fourth sect. addn. 100,000 kw generating plant. $20,000,000.

▲ Kan., Hugoton—PLANT—Hugoton-Plains Gas & Oil Co., Hugoton, gasoline plant, $1,750,000.

▲ Kan., Ulysses—PLANT—Stanolind Oil & Gas Co., First National Bank Bldg., Wichita, natural gasoline plant, $2,750,000. CD 12/4/47.

▲ Mont., Glendive—PLANT—Chromium Mining & Smelting Corp., Sault St. Marie, Ontario, Canada, smelter plant, $1,500,000. J. I. Rankin, c/o owner's engr.

▲ N. J., New Providence—ENGINEERING, etc.—Thomas & Betts Co., Inc., 6 Butler St., Elizabeth, 120,000 sq. ft. engineering dpt. and offices, $1,000,000.

▲ N. M., Eunice—PLANTS—Skelly Oil Co., Skelly Bldg., Tulsa, Okla., gasoline plant No. 1, expans. $1,250,000; expans. of gasoline Plant No. 2, $1,000,000. CD 2/23.

▲ N. C., Marion—PLANT—American Thread Co., Kerr St., Fall River, Mass., plans by J. E. Sirrine & Co., 215 Main St., Greenville, S. C., finishing plant. Approx. $3,000,000. CD 4/19.

▲ O., Mount Vernon—FACTORY—Shellmar Products Corp., Mount Vernon, factory, $2,000,000.

▲ Okla., Duncan—PLANT—Skelly Oil Co., Skelly Bldg., Tulsa, doubling capacity of velma gasoline plant, $1,000,000.

Tex., Dallas—STORAGE—Nieman-Marcus, Main and Ervay Sts., 1 story 98,000 sq. ft. rein.-con. storage and service at 2620 Haskell St. $702,560.

▲ Tex., Fort Worth—PLANT—Castor Oil Products, Inc., c/o Arthur G. Blair, 145 Alexander St., Yonkers, N. Y., castor oil plant. $2,000,000.

▲ Wis., Janesville—GENERATING PLANT—Wisconsin Power & Light Co., 122 W. Washington Ave., Madison steam generating plant, $5,000,000. Sargent & Lundy, 140 S. Dearborn St., Chicago, 3, Ill., consult. engrs.

▲ Wyo., Landers—PLANT—Continental Sulphur and Phosphate c/o C. Andrade, III, Tower Petroleum Bldg., Dallas, Tex., phosphate plant, $4,000,000; sulphur plant, $2,000,000.

▲ Wis., Milwaukee—WAREHOUSE—Joseph T. Ryerson & Son, Inc., 320 S. 19 St., Zone 4, warehouse for storing steel. $2,000,000.

▲ B. C., Nanaimo—PLANT ADDN.—H. R. MacMillan Export Co. Ltd., 837 W. Hastings St., Vancouver, unbleached sulphate plant addn., $16,000,000. CD 3/4/49.

UNCLASSIFIED

Ind., Indianapolis—SERVICE CENTER—Indianapolis Power & Light Co., 17 N. Meridian St., service center on 14 acre tract at E. 30 and Lancaster Sts. $725,000. CD 1/30/47, under industrial bldgs.

▲ Tenn., Clarksville—NATURAL GAS SYSTEM—City, Clarksville, natural gas sys. $2,000,000. Bernard & Burk, Triad Bldg., Baton Rouge, La. consult. engrs. CD 10/28-47.

▲West Virginia—STORAGE, TRANSMISSION FACILITIES—United Fuel Gas Co., Lipscomb Bldg., Charleston, addns. to natural gas storage and transmission facilities in Kanawha and Putnam Counties, $4,775,830. CD 12/14/49.

▲ Alta., Edmonton—BOMBING, GUNNERY RANGE—Defence Const. Ltd., Ottawa, Ont. construct bombing and gunnery range stretching across Northern Alberta and Saskatchewan for new R. C. A. F. development, where the latest air weapons will be tested. incl. construction of runways, operations bldg. and barrack blocks. Approx. $14,000,000.

CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
May 15, Massachusetts

BIDS ASKED—BUILDINGS

Mass., Dighton—SCHOOL—B.A. 5/18—Town, John Bolger, chn., 1 story, brick, steel, concrete school, incl. athletic field, etc. $550,000. CD 11/24/50.

LOW BIDDERS—BUILDINGS

White Constr. Co., 18 Tremont St., Boston, Mass. Low Bidder. $999,800. 105 units HOUSING. Proj. PHA 16-1, CHELSEA, MASS. Chelsea Housing Auth., City Hall, Chelsea, Mass. Bids Apr. 24. CD 3/22.

▲ **State, Dpt. Mental Health**, 100 Nashua St., Boston, Mass. rejected bids Mar. 22 M 201, Contr. 1, bldg. for Psychotic Children, Metropolitan State Hospital, WALTHAM, MASS. L. B. $1,181,760 Alternate A Minus $3,460. $1,174,760, Alternate B minus $100. Will readvertise. CD 3/29.

CONTRACTS—HEAVY CONSTRUCTION

▲ **Merritt-Chapman & Scott Corp.**, 79 Milk St., Boston, Mass. Contract Awarded. $1,499,017. substructure multiple span steel truss bridge across Merrick River Ut 62 (8). Contr. B, Amesbury and Newburyport, MASSACHUSETTS. Commonwealth of Mass., Dpt. Pub. Wks., 100 Nashua St., Boston, Mass. CD 4/16, under LB.

▲ **Westcott Constr. Co.**, 52 N. Washington St., North Attleboro, Mass. Contract Awarded. $1,348,000. sewage disposal plant, EAST PROVIDENCE, R. I. Town, Town Hall, East Providence, R. I. Bids Apr. 2. CD 4/19, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 23, Delaware
STREETS AND ROADS
May 15, Maryland
May 16, New York
May 23, Delaware

BIDS ASKED—BUILDINGS

N. J., Trenton—HOUSING—B.A. About 5/15—Trenton Housing Auth., 875 New Willow St., 4 three-story brick, structural steel apartments incl. 81 units, Frazer St. $965,000. Plans deposit $25. Mickle-wright & Mountford, 72 Ewing St., archts. CD 5/10/50.

N. J., Mount Holly—HOSPITAL—B.A. 5/15—Burlington County Hospital, Mount Holly, hospital addns., alterations, $725,000, George Von Uffel Jr., 30 Warwick Rd., Haddonfield, archt. CD 12/1/49.

▲ **Md., Baltimore**—SCHOOL—B.A. 5/16—City, R. E. L. Williams, bldg. constr. engr., 410 Municipal Bldg., Zone 2, 3 story, brick, concrete block, cinder block, steel Booker T. Washington Junior High School addn., alterations, incl. 2 gymnasiums, power plant. $1,-600,000. Plans deposit $100. Tyler, Ketchum & Myers, 513 Park Ave., archts. Crout, Snyder & Crandall, 500 American National Bldg., struct. engrs. James Posey, 10 E. Pleasant St., mech. engr. CD 11/17/48.

▲ **N. J., Hillside**—SCHOOL—B.A. 5/17—Pingry School, 87 Parker St., Elizabeth, school, North Ave. and Lake Ursino. $1,000,000. CD 6/16.

Del., Wilmington—SYNOGOGUE, etc. — Bids Asked — Congregation Beth Sholom, c/o Aaron Finger, du Pont Bldg., synagogue and school, $520,000. Maurice Courland, 2 W. 89 St., New York, N. Y., archts. Bids Dec. 26 rejected. CD 12/20.

LOW BIDDERS—HEAVY CONSTRUCTION

▲ **Delham Constr. Co. Inc.**, 6010 15 Ave., Brooklyn 19, N. Y. Low Bidder. $1,381,547. Sewers, 166 and Murray Sts., 17, 160, 21, 26, 27, 28 and 29 Aves., Willets Point Blvd.***Andrew Catapano & Co., 88-36 77 Ave., Glendale, N. Y., $630,550, Cross Island Parkway, Service Roadway, Willets Point Blvd. etc. ***Albert Clemente, 68-54 Alderton St., Forest Hills, N. Y., $62,635, 27 and 26 Aves., 25 Rd., 125 and 126 Sts., in Queens Boro, NEW YORK. President Queens Boro, 120-55 Queens Blvd., Kew Gardens, 15, N. Y. Bids Apr. 27. CD 4/9.

▲ **Peerless Constr. Co.**, 280 Madison Ave., New York 61, N. Y. Low Bidder. $1,258,000. Contr. A, structures and equip.***Forest Electric Corp., 630 Ninth Ave., New York 19, N. Y., $113,368, Contr. B, electrical equip. for work at Port Richmond Sewage Treatment Works, PORT RICHMOND, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Apr. 25. CD 3/22.

LOW BIDDERS—BUILDINGS

▲ **Depot Constr. Corp.**, 119 W. 57 St., New York 19, N. Y. Low Bidder, $9,432,000, base bid, $5,506,000, Alternates, Contr. 1, demolition, general constr. work; elevators and dumbwaiters, metal equip. top soiling and planting***Far Plumbing Co., 2018 Crotona Parkway, New York 60, N. Y. $1,066,666, base bid $599,999, Alternates Contr. 2, plumbing and kitchen equip.***Heating Maintenance Corp. of New York, 220 E. 138 St., New York 51, N. Y., $1,116,260, base bid, $759,660, alternates, Contr. 3, heating, ventilating, air-conditioning, refrigerator work***John G. Hellman Co., Inc., 391 Fulton St., Brooklyn 1, N. Y., $838,524, base bid, $590,-225, alternates, Contr. 4, electrical and lighting fixtures for the NURSES' SCHOOL and RESIDENCE, at Bellevue Hospital, NEW YORK, N. Y. Dpt. P. Wks., Municipal Bldg., 7, N. Y. Bids Apr. 18. CD 4/2.

▲ **T G K Constr. Co., Inc.**, 55 W 42 st., New York 18, N. Y. Low Bidder, $1,554,500, P.S. 109, Popham Ave. and Palisade Pl. (Spec. Nos. 10, 11, 12 and 13 of 1951 and Amendment No. 1), NEW YORK, N. Y. Supt. School Bldgs., Design & Construction, 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Apr. 24. CD 4/2.

▲ † **Christensen & Neilsen**, 114 Union St., Schenectady, N. Y. Low Bidder, $1,272,030, Items 1-8***Planet Constr. Corp., 11 W. 42 St., New York 18, N. Y., $390,000, Item 9, for engineer base maintenance SHOP and reconstruction 2 burned out WAREHOUSE units at Schenectady General Depot, No. Eng. 30-075-51-e08, VOORHEESVILLE, N. Y. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids about Apr. 26. CD 4/6.

▲ † **Daniel J. Cronin, Inc.**, 717 S. Grange Ave., Newark, N. J. Low Bidder. $6,580,000, high pressure BLOWER and TEST wing, Turbine Laboratory, TRENTON, N. J. Dpt. Navy, Navy Bldg., Wash., D. C. Bids Apr. 25. CD 4/12.

CONTRACTS—HEAVY CONSTRUCTION

† **James H. Merritt & Co.**, 1113 34 Ave., Long Island City, 6, N. Y. Contract Awarded. $890,943, repairs for maintenance and storm damage, Naval Industrial and Reserve Shipyards, PORT NEWARK and KEARNY, N. J. P. Wks. Office, Third Naval Dist., 90 Church St., NEW YORK, N. Y. Bids Apr. 4, awarded Apr. 12.

▲ **John H. Swanger, Inc.**, Lancaster, Pa., Contract Awarded, $1,005,271. 17,798 ft. construction of divided highway, incl. plate girder and an I-beam bridge, sect. of Allentown by-pass, Route U. S. 22, Upper Macungie and S. Whitehall Twps Lehigh Co., PENNSYLVANIA. State Hy. & Bridge Auth., 506 N. Office Bldg., Harrisburg, Pa. Bids Apr. 20, Awarded Apr. 27. CD 4/24, under LB.

▲ **Wilmouth Paving Co.**, First and P. Sts. S. E., Wash., D. C. Contract Awarded. $1,111,752. Contr. M-445-6-315, grading, drainage, surf. 2.036 mi. divided hy. along Georgia Ave., State Rte. 97, Montgomery Co., MARYLAND. State Rds. Comn., 108 Lexington St., Baltimore 2, Md. CD 1/29, under LB.

CONTRACTS—BUILDINGS

▲ **Brigham Park Apartments**, c/o Julius Fishkind, archt., 161-19 Jamaica Ave., Jamaica, N. Y. Owner builds. $12,000,000. Co-operative apartment, 21 six story bldgs. on tract bounded by Knapp St., Avenue U, Avenue W and Gerritsen Ave. BROOKLYN, N. Y.

▲ **Beech Hill Gardens**, c/o Benjamin Braunstein, archt., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. $8,000,000. Co-operative APARTMENT, for 816 families on 40 acre tract bounded by Horace Harding Blvd., Marathon Parkway, North Hills County Club and Douglaston Parkway. DOUGLASTON, N. Y. CD 3/29.

▲ **Sam Berger**, c/o Edwin Kline & A. H. Salkowitz, archts. 37-60 82 St., Jackson Heights, N. Y. $3,000,-000. Owner builds 100 one family HOUSES on site bounded by Bayview Ave. Byron Lane and Emerson Dr., GREAT NECK, N. Y.

▲ **Turner Constr. Co.**, 420 Lexington Ave., New York, N. Y. Contract Awarded. $3,500,000. FACTORY and OFFICE, HEMPSTEAD, N. Y. Armour & Co., Union Stock Yards, Chicago 9, Ill. Alexander D. Crosett & Assoc., 27 Williams St., New York, N. Y., archts. Awarded Apr. 2.

William Brafman & Co., c/o Erwin Gerber, archt., 1180 Raymond Blvd., Newark, N. J. Owner builds. Approx. $900,000. APARTMENT for 116 families, Merrick Rd. and 173 St. JAMAICA, N. Y.

▲ **Depot Constr. Corp.**, 119 W. 57 St., New York 19, N. Y. Contract Awarded. $1,249,000. P. S. 112 SCHOOL, Crescent St. and 37 Ave., LONG ISLAND CITY, N. Y. Supt. School Bldgs., Design & Cosstruction, 449 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Apr. 3, awarded Apr. 12. CD 4/10, under LB.

▲ **Bethlenem Steel Co.**, 25 Broadway, New York 4, N. Y. Contract Awarded. $2,585,100. structural steel for 74th St. POWER PLANT, NEW YORK, N. Y. Bd. Transportation, 370 Jay St., Brooklyn 1, N. Y. Bids Apr. 6. CD 4/19, under LB.

▲ **Cottage Homes**, c/o Alwin Cassens, Jr., archt., 116-55 Queens Blvd., Forest Hills, N. Y. Owner Builds. $1,000,000. 125 one family HOUSES on tract at Brower Ave. and Benjamin Rd., OCEANSIDE, N. Y.

▲ **Syosett Ranch Village**, c/o A. H. Salkowitz, archt., 37-60 82 St., Jackson Heights, N. Y. Owner Builds. $1,000,000. 100 one family HOUSES, Cold Spring Rd., SYOSETT, N. Y.

▲ **Hewlett Park Homes**, c/o Alwin Cassens, Jr., archt., 116-55 Queens Blvd., Forest Hills, N. Y. Owner Builds. $4,000,000. 230 HOUSES on 54 acre tract at Mill Rd. and Rosedale Ave., VALLEY STREAM, N. Y.

▲ **Wantagh Park Homes**, c/o Stanley H. Klein, archt., 89-31 161 St., Jamaica, N. Y. Owner Builds. $4,-000,000. 400 one family HOUSES on 80 acre tract on Jerusalem and Washington Aves., WANTAGH, N. Y.

▲ **Olden Development Corp.**, Trenton Trust Bldg., Trenton, N. J. Owner Builds. $1,300,000. 127 ranch type frame, brick HOMES, S. Olden, Finley and Norton Aves., HAMILTON TWP. N. J. Trenton Eng. Co., 143 E. State St., Trenton, engr. American Homes, Inc., S. Aubrey and Walnut Sts., Allentown, Pa., archt.

▲ **Luck Homes, Inc.**, c/o McMurray & Chirgotis, archts., 968 Stuyvesant Ave., Union, N. J. Owner Builds. $4,000,000. 220 one-family HOUSES on 62 acre tract, No. Fifth Ave. and Mill Brook, RARITAN TWP., N. J.

▲ **Allen B. Holmes, Inc.**, 3001 Druid Park Dr., Baltimore, Md. Separate Contracts. $6,000,000, RESIDENTIAL DEVELOPMENT, incl. 503 units, NEW CASTLE, DEL. Julius Myerbert, 302 Park Ave., Baltimore, Md., archt.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 15, South Carolina May 22, 23, Virginia
May 30, Louisiana
STREETS AND ROADS
May 15, South Carolina May 22, 23, Virginia
May 16, Louisiana May 30, Louisiana

Ga., Macon—B.A. 5/15—Bibb Co., c/o Fenley Ryther, co. engr., Court House, laying curb, gutter on various streets, $95,000. CD 7/29/46.

BIDS ASKED—BUILDINGS

▲ **Ga., Columbus**—PLANT—B. A. 5/16—Wells Dairies Co-operative, 2320-30 Wynnton Rd., dairy plant. $1,500,000. E. Oren Smith, 1236 Wildwood Ave., Columbus, archt. CD 4/20.

▲ **Fla., Orlando**—SCHOOL—B. A. 5/18—Orange Co. Bd. P. Instruction, Orlando, West Orlando Senior High School, $1,000,000. Geo. H. Spohn, Winter Park, Fla. and F. Earl De Loe, 6 W. Church St., Orlando, Fla., archt. Extended date. CD 2/28.

LOW BIDDERS—HEAVY CONSTRUCTION

Keller Constr. Corp., 7900 Palm St., New Orleans, La. Low Bidder. $940,000. Underpass on Canal Ave. at Homedale Ave., NEW ORLEANS, LA. New Orleans R. R. Termfnal Bd., City Hall Annex, New Orleans, La. Bids Apr. 26. CD 3/28.

▲ **Williams Brothers Corp.**, 6006 Humble Rd., Houston, Tex. and Davis & Co., Commerce Bldg., Houston, Tex. Contract Awarded. $9,850,000. 160 mi. section 30 in. welded joint natural gas pipe line, Kosciusko, Miss. to Florence, Ala. MISSISSIPPI-ALABAMA. Texas Eastern Transmission Co., 1003 Esperson Bldg., Houston, Tex.

▲ **Foster Wheeler Co.**, Union Central Bldg., Cincinnati, O. Contract Awarded. $1,100,000. 2 BOILERS for power plant, Ford, KENTUCKY. East Kentucky Rural Electrification Admin., Winchester, Ky. Awarded Apr. 15.

LOW BIDDERS—BUILDINGS

▲ **Ray M. Lee Co.**, 1004 Edgewood Ave. N. E., Atlanta, Ga. Low Bidder. $974,375. MEN'S DORMITORY; $1,-192,913, GIRL'S DORMITORY at University of Georgia, ATHENS, GA. Bd. Regents, University System of Georgia, 120 Ivy St. S. E., Atlanta, Ga. Bids Apr. 26. CD 4/16.

CONTRACTS—BUILDINGS

**L. A. Warlick Contg. Co., 747 E. 11 St., Chattanooga, Tenn. Contract Awarded, $967,500. HOSPITAL, CLEVELAND, TENN. Bradley Co., Cleveland, Tenn. Bids Mar. 8. CD 3/19, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 21, Wisconsin
STREETS AND ROADS
May 21, Wisconsin

BIDS ASKED—BUILDINGS

▲ **Ill., Chicago**—APARTMENT—B.A. 5/15—New York Life Insurance Co., 51 Madison Ave., New York, 18, N. Y., 13 apartments incl. 1,400 housing units, 25 and 31 Sts., S. Parkway to Lake Michigan. $18,000,-000. Skidmore, Owings & Merrill, 100 W. Monroe St., Zone 3, archts. 8/18/49.

▲ **Ill., Tinley Park**—HOSPITAL—B.A. 5/15—Illinois Public Welfare Dpt., mental hospital at Harlem Ave. and 183 St. $20,000,000. Skidmore, Owings & Merrill, 100 W. Monroe St., Chicago, Zone 3, Ill., archts. CD 2/2/50.

▲ **Ind., South Bend**—LIBERAL and FINE ARTS—B.A. 5/15—Notre Dame University, Campus, South Bend, O'Shaughnessy liberal and fine arts bldg. $1,500,000. Ellerbe & Co., First National Bank Bldg., St. Paul, Minn., archt. CD 4/20/50.

LOW BIDDERS—HEAVY CONSTRUCTION

**L. W. Lamb, Holland, Mich. Low Bidder. $825,538, est. $700,000. concrete, steel bridge over Muskegon

River on M 37. Proj. FBI of 62-12-1, Cl (F 268 4), Newago Co., MICHIGAN. State Hy. Comn., Lansing 13, Mich. Bids Apr. 19. CD 4/3.

LOW BIDDERS—BUILDINGS

▲ **Western Reserve Building Co.**, Warren, O. Low Bidder. $1,014,872, est. $1,000,000. HIGH SCHOOL, HUBBARD, O. Bd. Educ., Hubbard, O. Bids Apr. 26. CD 4/11.

CONTRACTS—HEAVY CONSTRUCTION

▲ **Welsbach Corp.**, 4622 Calumet Ave., Hammond, Ind. Contract Awarded. $1,569,980. sewage disposal plant, treatment plant, Div. C, BENTON HARBOR and ST. JOSEPH, MICH. Cities Benton Harbor and St. Joseph, Mich. CD 4/25, under LB.

CONTRACTS—BUILDINGS

▲ **James McHugh Constr. Co.**, 6449 S. Park Ave., Chicago, 37, Ill., Contract Awarded. $1,334,750. general constr. student RESIDENCE HALL and $959,200. APARTMENT, at University of Illinois, CHICAGO, Ill. University of Illinois, 809 S. Marshfield St., Chicago, 7, Ill. Bids Mar. 6. CD 3/13, under LB.

▲ **Robin Constr. Co.**, 1333 N. Wells St., Chicago, 10, Ill., Contract Awarded. $1,575,000. 154 unit Harrison HOUSING, Grinnel and Folker Sts., PEORIA, ILL. Peoria Housing Auth., Peoria, Ill. Bids Apr. 11, awarded Apr. 23. CD 3/28.

▲ **T. S. Willis**, 326 Hayes Park, Janesville, Wis. Contract Awarded. Approx. $2,000,000. 1 story 270x525 ft., concrete, steel, glass FACTORY addn. JANESVILLE, WIS. Parker Pen Co., 219 Court St., Janesville, Wis. A. W. Kerr & Assocs., 407 S. Dearborn St., Chicago, Ill., engrs.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 15, Iowa
STREETS AND ROADS
May 15, Iowa May 18, Minnesota

▲† **Montana**—B.A. 5/22—Bureau Reclamation, Hungry Horse Gov't Camp, Columbia Falls, excav., earthwork, 47 mi. long Forest Service road on west side of Hungry Horse reservoir. Bids 4/3 rejected. L. B. $2,348,213. CD 4/10 under L. B.

BIDS ASKED—BUILDINGS

Minn., St. Louis Park—SCHOOL—B.A. 5/17—Bd. Educ., V. S. Formo clk., 2 story, Park Knoll Grade School, $550,000. Plans deposit $25. Haxby, Bissell & Belair, 1111 Nicollet Ave., Minneapolis, archts.

Tex., Galveston—HOSPITAL—B.A. 5/17—Bd. Regents University of Texas, 205 Main Bldg., Austin, 4 story Ziegler Tuberculosis hopsital unit, $975,000. Plans deposit $40. Kenneth Franzheim, 2402 Crawford St., Houston, archt. CD 1/3/50.

▲† **Tex., Amarillo**—PLANT—B.A. 5/18—U. S. Atomic Energy Comn., Los Alamos, N. M., addnl. construction for Atomic Energy production plant (at Pantex area). $2,500,000.

Minn., Mankato—SCHOOL—B. A. 5/17—State, Dpt. Admin. P. T. Peterson, dir. Purch., 19 State Capitol, St. Paul, classroom addn., State Teachers College, $800,000. Plans deposit $25. McEnary & Krafft, 1110 McKnight Bldg., Minneapolis, archts. Bids 10/26 rejected. CD 11/16 under LB.

Tex., Orange—HOUSING—B.A. 5/22—Orange Housing Auth., Orange, 100 brick, hollow tile housing units for Whites, concrete slab fdn. $800,000. Plans deposit $50. Watkins, Fitch & Assoc., 3101 San Jacinto St., Houston, archts. CD 10/12/50.

Tex., Corsicana—DWELLINGS—Bids Asked—Corsicana Housing Auth., Corsicana, 86 dwellings units for total 29 separate bldgs., concrete slab fdn., brick, hollow tile walls constr. Tex. 33-2. $688,000. Plans deposit $50. CD 10/5/49.

Tex., Houston—HEADQUARTERS—Bids Asked—The Lummus Co. M. Esperson Bldg., headquarters bldg. $500,000. Walter Kidde Engineers Southwest, Inc., 4101 San Jacinto St., engrs. CD 4/9.

Tex., McAllen—MERCANTILE—Bids Asked—Hackberry Realty Co. Inc., McAllen, 2 story 65,000 sq. ft. mercantile. Approx. $650,000. Plans deposit $25. Cowell & Neuhaus, 2303 LaBranch St., Houston. George L. Dahl, 1920½ Main St., Dallas, archts. CD 1/2.

LOW BIDDERS—HEAVY CONSTRUCTION

▲ **Hoak Constr. Co.**, 621 63 St., Des Moines, Ia. Low Bidder. $1,197,063, est. $1,000,000. Sect. S. 388 mi. rural distr. lines, 21.14 mi. conversions, Crawford, Dent, Gasconade, Maries, Phelps, Pulaski, Texas and Wright Counties and Sect. V. 371.7 mi. rural distr. lines and 11.71 mi. conversions, Dent, Phelps, Texas and Shannon Counties, MISSOURI. Intercounty Electric Co-operative Assn., Licking, Mo. Bids Apr. 20. CD 4/4.

▲† **Texas Constr. Co., P. O. Box 1384**, Dallas, Tex. Low Bidder. $1,578,732, est. $1,386,548. Construct outlet works at Garza-Little Elm Dam and Reservoir, near Wylie, CIVENG 41-443-51-31, TEXAS. U. S. Eng., 1127 Texas and Pacific Bldg., Fort Worth, Tex. CD 3/22.

▲† **Texas Constr. Co.**, Box 1384, Dallas, Tex. Low Bidder. $2,777,240. Converting to locks, Colorado River Flood Gates, Inv. No. CIVENG 41-243-51-82, at Matagorda, TEXAS. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids Apr. 24. CD 4/2.

LOW BIDDERS—BUILDINGS

▲ **Fowler-Vernath Constr. Co.**, 303 S. First Ave. E., Duluth, Minn. Low Bidder. $2,777,993. 206 DWELLINGS, Greenhaven housing, HIBBING, MINN. Greenhaven, Inc., R. T. Sprague, pres., Bd. Directors, Hibbing, Minn. Bids Apr. 20. CD 4/4.

▲ **A. H. Newmann & Bros.**, 514 Hubbell Bldg., Des Moines, Ia., Low Bidder, $1,428,500, general constr.; W. L. Dwyer, 533 6 St., Des Moines, Ia., $453,877, plumbing, heating and ventilating, WOMEN'S DORMITORIES, DES MOINES, IA. Drake University, 25 and University Sts., Des Moines, Ia. Bids Apr. 7. CD 4/4.

CONTRACTS—HEAVY CONSTRUCTION

Central States Constr. Co., Crosby, Minn. Contract Awarded. $939,144. c. and c. 16 mi. between Euclid and Warren, Marshall Co., MINNESOTA. State Hy. Dpt., 1246 University Ave., St. Paul, Minn. CD 3/28, under LB.

▲† **Johnson, Drake & Piper, Inc.**, 1138 Baker Bldg., Minneapolis, Minn. Contract Awarded. $1,087,031. constr. Orwell Dam on Otter Tail River, MINNESOTA. U. S. Eng., 1217 U. S. P. O. and Custom House, St. Paul 1, Minn. CD 4/18, under LB.

CONTRACTS—BUILDINGS

Hagstrom Constr. Co., 1567 Selby Ave., St. Paul, Minn. Contract Awarded. $978,030. general constr. St. Joseph's HOSPITAL, BRAINERD, MINN. Benedictine Sisters Benevolent Assn., Villa Sancta Scholastica, Kenwood Ave., Duluth, Minn. CD 3/28, under LB.

▲ **D'Arcy Leck Constr. Co.**, 2838 Stevens Ave., Minneapolis, Minn. Contract Awarded. $1,043,361. general constr. Secondary SCHOOL, LABORATORY and GYMNSIUM at College of Education MINNEAPOLIS, MINN. University of Minnesota, R. S. Calloway, purch. agt., 323 Admin. Bldg., Main Campus, Minneapolis, Minn. CD 4/19, under LB.

▲ **Brown & Root, Inc.**, Box 3, Houston, Tex., Contract Awarded. $2,750,000. chlorine and caustic PLANT expansion, HOUSTON, TEX. Diamond Alkali Co., 1006 Main St., Houston, Tex. CD 11/18/49.

▲ **Brown & Root, Inc.**, Box 3, Houston, Tex. Contract Awarded. Approx. $5,750,000. CHEMICAL PLANT, PAMPA, TEX. Celanese Corp. of America, H. Blancke, pres., 180 Madison Ave., New York, N. Y. CD 4/26.

Leslie Crockett, 112 Academy Dr., Austin, Tex., Contract Awarded, $877,000. est. $850,000., 76 DWELLING units in 17 bldgs. and administration bldg., Tex. 30-1 and 30-2. TEMPLE, TEX. Temple Housing Auth., c/o Wm. Wilhite, Dir., Temple, Tex. Bids April 12. Awarded April 16. CD 4/20, under LB.

▲ **Martinson Constr. Co.**, 5400 Colorado Blvd., Denver, Colo. Contract Awarded. Approx. $1,500,000, service parts depot WAREHOUSE and general sales district OFFICE, DENVER, COLO. International Harvester Co., 180 N. Michigan Ave., Chicago, Ill.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 23, California
STREETS AND ROADS
May 23, 24, California

▲† **Wash., Spokane**—BARRACKS, etc.—B.A. 5/22—U. S. Eng., 19 E. Poplar St., Walla Walla., barracks, mess facilities bldg., and utilities at Fairchild Air Force Base ENG 45-164-51-4, $1,200,000. Plans deposit $25. Naramore, Bain, Brady & Johanson, 904 7 Ave., Seattle, archts. CD 5/1.

▲ **Calif., Los Angeles**—TRANSIT SHEDS—B.A. 5/23—Los Angeles Harbor Dpt., City Hall, Los Angeles, transit shed facilities at Berths 196 and 197 $3,000,000. Plans deposit $25. E. C. Earl, engr. Extended date. CD 4/3.

LOW BIDDERS—HEAVY CONSTRUCTION

▲ **Griffith Co.**, 1060 S. Broadway, Los Angeles, Calif., Low Bidder, $1,429,146, grading, paving, grade separation structures 2.5 mi. Los Angeles River Freeway in Long Beach, Calif. **Anderson Co.**, P.O. Box 1190, Visalia, Calif., $74,675, plant mix surf. 15 mi. Main St. in El Centro, CALIFORNIA. State Div. Hys., 120 S. Spring St., Los Angeles, Calif. CD 4/3.

† **Daley Corp.**, Box 67, North Station, San Diego, Calif. Low Bidder. $904,680. Runway exten. for jet operation, MIRAMAR, CALIF. Dpt. Navy, Eleventh Dist., 1220 Pacific Hy., San Diego, Calif. Bids Apr. 24. CD 4/12.

LOW BIDDERS—BUILDINGS

▲† **U. S. Eng.**, 4735 E. Marginal Way, Seattle 4, Wash. rejected bids Apr. 10. additional bldgs., rehabilitation of existing bldgs. and utilities. Eng. 45-108-51-125, NORTH RICHLAND, WASH. L. B. $2,376,951. Will re-advertise. CD 4/16.

▲ **Leland McArthur & Assoc.**, 900 S. 5 St., Las Vegas, Nev. Low Bidder. $2,700,000, construct, manage and finance, 300 APARTMENT UNITS at Naval Air Base, WHIDBEY ISLAND, WASH. P. Wks. Div., Thirteenth Naval Dist., 1611 W. Wheeler St., Seattle, Wash. Bids Apr. 27. CD 3/21.

CONTRACTS—HEAVY CONSTRUCTION

▲ **California-Oregon Power Co.**, Medford, Ore. Force Account. $2,200,000. dams on Fish Creek, Slide Creek and at Soda Springs, Douglas Co., OREGON. A. C. Cummins, Medford, engr. CD 2/26/47.

▲ **United Concrete Pipe Corp.**, Box 425, Baldwin Park, Calif., Contract Awarded, $1,129,744, water mains, appurtenances, under LS 536, OAKLAND, CALIF. East Bay Municipal Utility Dist., 512 16 St., Oakland, Calif. Bids Mar. 23, awarded Apr. 25. CD 4/2 under LB.

CONTRACTS—BUILDINGS

▲† **D. M. Sweeney & Triangle Building Co.**, Idaho Falls, Idaho. Contract Awarded. $340,129, est. $358,840. Construct 5 BUILDINGS in Area "D", incl. 1 story air-operations bldg.; 1 story fire and crash truck station; 1 story meteorological bldg.; 1 story cafeteria and 1 story technical laundry***Cahill-Mooney Constr. Co., 1220 E. Front St., Butte, Mont. $2,467,550, est. $2,526,000, construct 10 BUILDINGS in Area "E" incl. 1 story civilian cafeteria; 1 story quartermaster office and warehouse; 1 story utilities shop; 1 story ordnance maintenance shop; 1 story photographic laboratory; 1 story transportation bldg.; 1 story administration bldg.; 1 story officers' mess and two 1 story warehouses***Christiansen Bros., 209 W. 13 South St., Salt Lake City, Utah, $912,044 est. $1,038,471. Constructing combined OPERATIONS bldgs. in Area "E" incl. 1 story combined operations bldg.; 1 story animal shed and 1 story goat and sheep shed, in Dugway Proving Ground, TOOELE, UTAH. U. S. Eng., 24 New Montgomery St., San Francisco, Calif. Grand total $5,719,823. Bids April 19. CD 3/15.

▲ **Stone & Webster**, 601 W. 5 St., Los Angeles, Calif. Contract Awarded. Approx. $3,500,000. Etiwanda steam-electric generating STATION, FONTANA, CALIF. The Southern California Edison Co., 601 W. 5 St., Los Angeles, Calif. CD 10/24.

▲ **Arnold Constr. Co.**, 962½ S. Atlantic St., Los Angeles, Calif. Contract Awarded. Approx. $2,032,200. 255 frame, stucco DWELLINGS, Alburtis Ave., Anaheim-Telegraph Rd., SANTA FE SPRINGS, CALIF. Birmingham Development Co., 962½ S. Atlantic St., Los Angeles, Calif. Riley & Levanas, 11544 E. Whittier Blvd., Whittier, Calif., archts.

ALASKA

LOW BIDDERS—BUILDINGS

† **J. H. Pomeroy & Co., Inc.**, 333 Montgomery St., San Francisco, Calif. Low Bidder. $919,023, est. $827,667. FIELD MAINTENANCE SHOP, ORDNANCE, Inv. No. S95-507-51-90, FORT RICHARDSON, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids Apr. 26. CD 4/4.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
June 4, British Columbia

BIDS ASKED—BUILDINGS

▲ **Que., Ville LaSalle**—STORAGE—B.A. 5/15—M. P. McAndrew, engr., Defence Constr. Ltd., 1247 GGuy St., Montreal, Que., four 200x600 ft., 1 story, concrete block storage bldgs. at Naval Stores Development. Approx. $3,500,000. Plans deposit $100. CD 1/26.

LOW BIDDERS—HEAVY CONSTRUCTION

Robertson Constr. & Eng. Co., Ltd., 512 Clifton Ave., Niagara Falls, Ont. Low Bidder, Approx. $989,000. 24 m.g. rein.-con. reservoir at Carlington Heights, (less excavation), OTTAWA, ONT. City, City Hall, Ottawa, Ont. CD 8/24/49.

CONTRACTS—HEAVY CONSTRUCTION

▲ **Concrete Products (Newfoundland) Ltd.**, Mount Pearl St., St. John's, Newfoundland, Contract Awarded, $1,000,000, exten., strengthening runway, other surface work at airport, GANDER, NEWFOUNDLAND. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Bids Mar. 20, awarded Apr. 28. CD 3/9.

▲ **Geo. Hardy Ltd.**, 163 Wicksteed Ave., Leaside, Ont., Contract Awarded, Approx. $3,832,000, central supply depot for R.C.A.F., DOWNSVIEW, ONT. Defence Constr. Ltd., 441 Queen's Quay W., Toronto, Ont. S. M. Connolly, c/o owner, engr.

▲ **R. E. Stewart Constr. Corp.**, 263 Wellington St. S., Sherbrooke, Que. Contract Awarded. Approx. $1,169,000, barrack block etc. at R.C.A.F. Station, BAGOTVILLE, QUE. Defence Constr. Ltd., 1247 Guy St., Montreal, Que. Bids Apr. 17. CD 4/5.

CONTRACTS—BUILDINGS

▲ **W. C. Wells Constr. Co. Ltd.**, Edmonton, Alta. Contract Awarded, $2,000,000, 25 BUILDINGS, incl. barracks, store house and other shelters, WAINWRIGHT, ALTA. Defence Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man. Bids Apr. 10, awarded Apr. 24. CD 4/5.

▲ **Harron & McCance Ltd.**, 53 Glencairn Ave., Toronto, Ont. Owner Builds. $1,000,000. HOUSING DEVELOPMENT, incl. 100 to 150 houses, in Laidlaw subdivision on Hy. 7, SARNIA, ONT.

(Proposal Advertisements see pp. 104 to 106)

CONSTRUCTION REPORTS—Third Section

Jet engine assembly plant—Thorgersen-Ericksen Co., Chicago, Ill., has been awarded a $32,000,000 contract to build a jet engine assembly plant at Willow Springs, Cook County, Ill., by the Buick Division, General Motors Corp., Detroit, Mich. Argonaut Realty Co., Chicago, Ill., is architect.

Danherst development—The Danherst Corp., Langhorne, Pa., plans to construct a $35,000,000 housing development, shopping center, schools, community buildings, churches, waterworks and sewerage at Morrisville, Pa., near Fairless Steel Works. Sewart H. Mott, Washington, D. C., is consulting engineer. Richard Tully, Columbus, O., is architect.

College buildings—George A. Fuller Co., of New York, N. Y. will construct a group of college buildings at Purchase, N. Y., for the Maanhatanveille College of the Sacred Heart, New York, N. Y. Estimated cost is about $14,000,000. Eggers & Higgins, New York, are architects.

Schools—City of Lincoln, Neb., voted $6,000,000 bonds to construct new schools.

Catalytic cracking plant—Phillips Petroleum Co., Bartlesville, Okla., awarded contract to Fluor Corp., of Los Angeles, Calif. to construct a $10,000,000 catalytic cracking plant, at refinery at Woods Cross, Utah.

Mental hospital—California State Division Architecture, Sacramento, Calif., will open bids June 12, for $8,000,000 Maxium Security Institution at Atascadero, Calif., for the Department of Mental Hygiene, Albert Criz and Paul R. Williams, Los Angeles, are architects.

Hotel—Irving Kupnis, Miami Beach, Fla., plans a $4,000,000 hotel at Miami.

Runway and reconstructing North Field—J. Dellinger, Inc., Corpus Christi, Bitulithic Co., Dallas, and Dean Word, New Braunfels, have been awarded a contract at $4,190,737 for constructing runway and reconditioning North Field, Kingsville, Tex. the Public Works Office, Department of the Navy, Corpus Christi, let contract.

Group of buildings—Atomic Energy Commission, Los Alamos, N. M. will take bids June 25, for $3,500,000 to $4,000,000 group of 134 buildings Project E, at Los Alamos.

Hospital—City of Tampa, Fla. plans an addition to Tampa City Hospital. Estimated cost will be about $4,000,000. Eliot C. Fletcher and Norman Six, Tampa, and Schmidt, Garden & Erikson, of Chicago, Ill., are architects.

Housing—Ritter Brothers, Harrisburg, Pa., were low bidder at $3,862,258 for constructing housing at Harrisburg Housing Authority. William L. Murray, Harrisburg, is architect.

Power plant—United States Rubber Co., plans to build a $3,000,000 power plant at Mishawaka, Ind. Boddy-Benjamin Associates, Inc., Detroit, Mich., is engineer.

Balt. residential development—Cross County Gardens, Inc., Baltimore, Md., will build by separate contracts a $3,000,000 residential development in Baltimore. Harry L. Katz, Baltimore, is architect.

Hospital—Alaska Native Service, Department of Interior, Washington, D. C., plans a hospital at Bethel, Alaska. Estimated cost is $3,500,000. Foss, Malcom & Olsen, Juneau, Alaska, are architects.

Housing—Farmer & Godfrey, Phoenix, Ariz., have been awarded a contract at $2,014,098 for housing in Phoenix, Ariz., by the Phoenix Housing Authority, Phoenix. Lescher & Mahoney, Phoenix, are architects.

Oil refinery—Process Construction Co., Los Angeles, Calif., will erect an oil refinery at Stettler, Alta., for the Pacific Petroleums, Ltd., Calgary, Alta., estimated cost of the project is $2,000,000.

Apartments—Clearview Housing Corp., Flushing, N. Y., will construct by separate contracts an apartment in Flushing. Cost is about $3,500,000. Benjamin Braunstein, Flushing, is architect.

Hospital—The City of Topeka, Kan., will open bids June 14, for an addition and nurses home at Stormont-Vail Hospital. Estimated cost is $3,300,000. Griest & Ekdahl, Topeka, and J. A. Hamilton, Minneapolis, Minn., are architects.

Dwellings—Oakview Homes, Phoenix, Ariz., awarded contract to construct group of dwellings to W. W. Robertson Co., Phoenix, at about $2,750,000. Max Maltzman, Los Angeles, Calif., is architect.

ENR INDEX NUMBERS

Index Base = 100	1913	1926	1949
Constr. Cost. May '51	543.9	261.4	114.02
Bldg. Cost . . . May '51	402.1	217.3	114.29
Volume . . . . . Apr. '51	515	209	149

Activity This Week

As reported to ENR (in millions of dollars)

Contracts by type of work

	This Week	Cumulative 19 wks 1951	1950	% chge
Waterworks	$6.3	$87.3	$88.3	−1
Sewerage	9.2	121.3	85.8	+41
Bridges	8.8	110.8	117.2	−5
Highways	34.6	373.4	392.1	−5
Earthwork, Waterways	2.8	210.9	142.6	+48
Buildings:				
Public	26.7	876.3	630.2	+39
Housg., pub.	15.2	203.8	82.1	+148
Housg., priv.	75.9	785.4	1,317.7	−40
Commercial	20.0	247.1	344.0	−28
Industrial	67.2	1,966.9	388.1	+407
Unclassified	28.1	580.0	326.0	+78

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

	1951	Cumulative 19 wks 1950	% chge
Corporate Securities	$728.5	$636.2	+15
Fed. loans, Priv. Constr.	0	0	0
State and Mun:			
Excl. housing	761.8	743.7	+2
Housing	338.1	222.6	+52
Fed. Aid. non-fed. constr.	73.4	0	0
Total Non-Federal	$1,901.8	$1,602.5	+19
FEDERAL	2,602.5	0	0
Total Capital	**$4,504.3**	**$1,602.5**	**+181**

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- Repair all Types Disintegrated Concrete
- Dam Reconstruction and Repairs
- Linings and Repairs to Reservoirs, Stacks, Bunkers, Sewers, Tanks, Tunnels, Pen Decks
- Structural Steel Encasements
- Restoration of Masonry Structures

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DRILLING ANYWHERE

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PENNSYLVANIA DRILLING COMPANY

PITTSBURGH, PA.

OFFICIAL PROPOSALS

Bids: May 16, 1951

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Wednesday, May 16, 1951, by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 2				
		L. Ketchum, Dist. Engr., 109 No. Genesee Street, Utica, N. Y.				
Oneida	FAC 51-2	Rome West Artery (W. Whitesboro St.-Black River Blvd.) FAC 50-9 Proj. U635(3) Cont. 2	0.72	Traffic Control System	$1,900 Plans $10	$33,000
		DISTRICT No. 4				
		A. R. Mulligan, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Ontario	FAC 51-3	Geneva City: Lake Front Arterial, Pt. 1 Proj. U452(3)	0.62	Grad. & Drain. = 0.55 mi.; 9" Cem. Conc. Pavt. 58' Wide = 0.06 mi.; Asph. Conc. Ty. 1A, Opt. = 0.01 mi. (North & South Ramps = 0.24 mi.)	$45,000 Plans $15	$822,000
Ontario and Monroe	OT 51-2 OT 51-3P RC 51-14 ST 51-2	Ontario Thruway, Sec. J & K Clover Street, S. H. 294 Mendon-Pittsford, S. H. 493 Five Secondary Roads	9.83	9" Cem. Conc. Pavt. 2 at 25' Wide = 7.73 mi. Asph. Conc. Ty. 1A, Opt. = 1.67 mi. Run of Bank Gravel = 0.35 mi. Misc. Work = 0.08 mi. 4 Sp. Hy. Sep. Alpha I-Beam 255' Tot. 3 Sp. Hy. Sep. Alpha I-Beam 136' 3" Tot. 2 Sp. Hy. Sep. Conc. Rig Fr. 162' Tot 2 Sp. Hy. Sep. Conc. Rig. Fr. 183' 8" Tot. Alpha Royalty = $661.00	$220,000 Plans $100	$3,930,000
		DISTRICT No. 5				
		C. R. Watkins, Dist. Engr., 65 Court Street, Buffalo, N. Y.				
Erie	FARC 51-9 FAC 51-1	Lackawanna City, South, S. H. 5071 Hamburg Turnpike, FAC 49-10 Proj. U750(3) Cont. 3	2.39	Traffic Signal System	$4,000 Plans $10	$75,000
		DISTRICT No. 6				
		H. F. Brumm, Dist. Engr., 30 West Main Street, Horneli, N. Y.				
Tioga	FASS 51-14	West Creek Road (Smiffin Bridge) Co. Rd. 308-408 Proj. S261(2)	0.50	Asp. Conc. Ty. 1A, Opt. 2 Sp. Alpha I-Beam 72' Ea. Alpha Royalty = $151.80	$9,500 Plans $10	$178,000
Chemung	FASS 51-10	Chemung-Van Etten-Loomis Bridge, Co. Rd. 3 Proj. S86-2)	0.28	Asph. Conc. Ty. 1A, Opt. 2 Sp. Alpha I-Beam 68' 9" Ea. Alpha Royalty = $115.20	$10,000 Plans $10	$189,000
		DISTRICT No. 10				
		J. J. Darcy, Dist. Engr., Montauk Highway at Little E. Neck Road, Babylon, L. I., N. Y.				
Bronx	FA BRP 51-1	Bronx River Parkway So. Ext. (Bruckner Blvd Interchange) Proj. U979(9)	0.27	8" & 9" Col. Cem. Conc 2 at 34' Wide 3 Sp. Conc. Rig. Frame 1 at 81', 2 at 47' 3"	$85,000 Plans $15	$1,535,000
Bronx	FACBE 51-1	Cross Bronx Expressway Contract 1B Proj. U1084(11)	1.23	Demolition of Bldgs.	$9,500 Plans $10	$173,000

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders". When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: May 15, 1951

Airlines Terminal & Parking Garage

TRIBOROUGH BRIDGE AND TUNNEL AUTHORITY

SEALED BIDS WILL BE RECEIVED BY the Triborough Bridge and Tunnel Authority's Administration Building, Randall's Island, New York 35, N. Y., as follows: Until 11:00 a.m. daylight saving time, on TUESDAY, MAY 15, 1951

For the construction of East Side Airlines Terminal and Public Parking Garage located 37th to 38th Streets and First Avenue, Borough of Manhattan.

Deposit required for specifications, etc., $75 for each set.

The information for bidders, form of contractor's bid, form of contract, the specifications, the plans and the forms of performance and labor and material bonds may be examined at the office of the Architect, John B. Peterkin, 36 West 44 Street, New York, N. Y. and copies thereof may be obtained upon deposit for each set, of the amount hereinabove specified, to be refunded upon return of the plans and documents in good condition within 30 days after the opening of bids.

Bids: June 15, 1951

Pump Stations

Mid-Valley Pipeline Company, Longview, Texas, will issue specifications and drawings May 15 and receive bids until June 15 covering building of six complete five thousand horsepower oil line pump stations and extending and adding to seven existing similar stations.

Coatractors interested in receiving specifications and drawings contact D. J. Ward, Purchasing Agent, Longview, Texas, prior to May 10, 1951. Copies of drawings and specifications may be obtained by making a deposit of $25 which sum will be refunded upon returning. Good condition of the complete documents within ten days after receipt of same or if used in submitting a bonafide proposal.

Mid-Valley Pipeline Co.
D. J. Ward, Purchasing Agent
Bramlette Bldg., Longview, Texas

Bids: May 23, 1951

State Road Work

Sealed proposals will be received by the State Highway Department, at its offices in Dover, Delaware, until 1:00 P. M., E. S. T., May 23, 1951 and at that time and place publicly opened for contracts involving the following approximate quantities:

Contract 983
Incidental Construction
New Castle County

Item #1—Integral Curb & Gutter, Delaware State Hospital, Farmhurst
Item #2—Storm Sewer, Maryland Avenue & Atkins Avenue
Item #3—Cement Concrete Gutter, Holly Oak Terrace
Item #4—Parkway Curb Traffic Islands, Elsmere
Item #5—Storm Sewer, Franklin Avenue, Claymont
Item #6—Storm Sewer, Governor Printz Boulevard, Fairfield Avenue to Mt. Vernon Drive

Contract 1032
3rd Street Bridge Repairs
Wilmington, New Castle County

75 C. Y. Excavation for structures
400 C. Y. Borrow
14 M. Ft. Creosoted Timber Structures
13,000 Lb. Structural Steel
11,400 L. F. Timber Piles
51,500 Lbs. Steel Sheet Piles
1,600 S. F. Removal & Relaying Present Mesh Floor
5,500 L. F. 3/16" Fillet Welding
2,500 L. F. 1/4" Fillet Welding
Painting
Balancing Bascule Leaves
Maintenance of River Traffic
Maintenance of Highway Traffic
Installation of Locks & Adjustments
Removal Existing Fender System
Fender Lights
Repairs to Bridge Railing

The Employment Agency for these Contracts shall be the Delaware State Employment Service, 601 Shipley Street, Wilmington, Delaware.

Attention is called to the Special Provisions in the proposal, specifications and contract agreement.

Performance of contract shall commence within ten (10) days after execution of the contract and be completed as specified

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms provided by the Department.

Each proposal must be accompanied by a surety bond, certified check, or money to the amount of at least ten (10) per centum of the total amount of the proposal.

The envelope containing the proposal must be marked "Proposal for the construction of State Highway Contract No. ————————"

The Contract will be awarded or rejected within twenty (20) days from the date of opening proposals.

The right is reserved to reject any or all bids.

Complete sets of plans and specifications may be obtained after May 7, 1951 upon receipt of five dollars ($5.00) for each set, which amount will not be refunded.

Make checks payable to the State Highway Department.

STATE HIGHWAY DEPARTMENT
By: J. Gordon Smith, Chairman
R. A. Haber, Acting Chief Engineer
Dover, Delaware
April 25, 1951

Bids: May 21, 1951

New Filter Equipment

Sealed bids will be received until 9:00 a.m., EST, May 21, A.D., 1951, in the office of City Auditor and Clerk for New Filter Equipment at Water Treatment Plant, Fort Lauderdale, Fla.

Bidding blanks may be obtained from the office of the Engineers. Plans and specifications are on file in the office of the Engineer.

A deposit of $25.00 for plans and specifications and of $15.00 each for additional copies of plans or specifications will be required. All deposits for plans and specifications will be refunded upon their return in good condition within ten (10) days of the opening of bids.

A certified check for 5% of the total amount of the bid, made payable to: City of Fort Lauderdale, Florida, shall accompany each proposal as evidence of good faith and responsibility of the bidder. This check shall be retained by the payee as liquidated damages should the bidder refuse or fail to enter into a contract with the payee for the execution of the work embraced in the proposal, in the event the proposal of the bidder is accepted.

The Owner reserves the right to reject any or all bids.

F. D. RANKINS
City Manager

(Continued on page 105)

OFFICIAL PROPOSALS
(Continued from page 104)

Bids: May 17, 1951

New Jersey Turnpike Authority

Sealed proposals will be received by the New Jersey Turnpike Authority for:

CONTRACTS NOS. 7S, 7SA and 7SB

The work to be done under these Contracts involves the erection and painting of corrugated Steel guard rail and the furnishing, erection and painting of either or both steel and wood posts, and other incidental work, all in connection with the construction of the New Jersey Turnpike. This work extends from the southern terminus of the Turnpike at Deepwater to the Mercer-Middlesex County line at the Millstone River. The division of work between Contracts 7SA and 7SB is at the Camden-Burlington County line. Contracts 7SA including all work in Salem, Gloucester and Camden Counties and Contract 7SB including all work in Burlington and Mercer Counties.

The principal items of work for Contracts Nos. 7SA and 7SB include:

Contract No. 7SA: Guard Rail, Erection and Painting, 160,000 lin. ft.; Steel and/or Wood Posts, Furnishing Erection and Painting, 8,200 each.

Contract No. 7SB: Guard Rail, Erection and Painting, 90,000 lin. ft.; Steel and/or Wood Posts, Furnishing Erection and Painting, 7,300 each.

The principal items of work for Contract No. 7S equal the sum of the quantities listed for Contracts Nos. 7SA and 7SB.

Bidders are hereby advised that the Authority has placed orders with various manufacturers for supplying the guard rail, including terminal pieces and bolts for splicing guard rail and for connecting rail to posts, and further, the Authority may, at its own option and convenience, furnish additional steel posts and brackets to the contractor.

Proposals will be received at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey until 10:30 o'clock Eastern Daylight Saving Time on the morning of May 17, 1951, and thereafter in the Veteran's Room of the War Memorial Building, Memorial Drive at Willow Street, Trenton, New Jersey, until 11:00 a.m., Eastern Daylight Saving Time, on the same date, at which latter time and place said proposals will be publicly opened and read.

The receipt and opening of proposals is subject to proper prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority. Bidders must also submit with their Proposal a revised financial statement and a statement of plant and equipment.

Contract documents may be seen, and may be inspected by prospective bidders during office hours, after May 2, 1951, at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York, New York.

Contract documents will be furnished for $5.00 for each set, upon application to the Authority. The payment will not be refunded and contract documents are not required to be returned.

Proposals must be made upon the standard proposal forms in the manner designated in the Standard Specifications, for Construction of the New Jersey Turnpike, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the contract on the outside, and must be accompanied by a certified check drawn to the order of the New Jersey Turnpike Authority and a proposal bond, each for not less than five (5) per cent of the amount of the proposal, but not less than $500.00 nor more than $200,000.00 and must be delivered at the place designated above on or before the hour named. Where proposals are submitted for more than one contract, one check and one bond based on the largest amount of work included in a single proposal will be sufficient. Copies of the proposal form to be used for submitting proposals, of the form for the proposal bond, of the form to be used for the financial statement and for the plan and equipment statement to be submitted with the proposal and special addressed envelope are furnished in detached form with the contract documents. Bidders submitting proposals on more than one of the above contracts are required to submit only one financial statement and only one statement of plant and equipment.

The Contract will be awarded or the proposals rejected within fifteen (15) days from the date of opening proposals. The right is reserved to reject any or all proposals.

THE NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast
Chairman

April 27, 1951

Bids: May 16, 1951

Nurses Home

ONONDAGA COUNTY HOME
Onondaga Hill, New York

SEALED PROPOSALS will be received until 2:00 P.M., E.D.T., May 16, 1951, by Robert W. Sollinger, County Purchasing Agent, in Room 107, at the Onondaga County Court House, Syracuse, New York, at which time and place they will be publicly opened and read aloud, for the construction of the above project.

Sealed Proposals shall be received for the following divisions of the work:

Contract No. 1—General Construction
Contract No. 2—Plumbing and Sanitary System
Contract No. 3—Heating and Ventilating
Contract No. 4—Electric Wiring System
Contract No. 5—Elevators, and Elevator Fronts and Doors

The Instructions to Bidders, Forms of Proposal, Form of Contract, Drawings and Specifications may be examined in the office of the County Purchasing Agent and at the Office of the Architects, Vedder and Curtin, A.I.A., 527 South Warren Street, Syracuse, New York. The above Documents shall also be on file for examination by prospective Bidders, Sub-Contractors and Materialmen, as follows:

Syracuse Builders' Exchange, Durston Bldg., Syracuse, N. Y.
Rochester Builders' Exchange, Rochester, N. Y.
Albany Builders' Exchange, Albany, N. Y.
Buffalo Builders' Exchange, Buffalo, N. Y.
Brown's Letters, 101 Park Avenue, New York City
Dodge Reports, 110 West 40th St., New York City.
Dodge Reports, 361 Delaware Avenue, Buffalo, N. Y.

Sets of the above Documents are obtainable from the County Purchasing Agent by depositing $50.00 for each set. Those who submit a Sealed Proposal for Prime Contracts to the County of Onondaga for this Project will be refunded their deposits in full if the Documents are returned in good condition on or before May 14, 1951. Others who receive the above Documents will be refunded one half of their deposits if the Documents are returned in good condition on or before May 14, 1951.

The right is reserved to reject any and all bids.

Robert W. Sollinger
Onondaga County
Purchasing Agent

April 4, 1951
Syracuse, New York

Bids: May 18, 1951

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until two o'clock p.m., advanced standard time, which is one o'clock p.m., eastern standard time, on May 18, 1951 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE NEW ENGLAND THRUWAY, PELHAM MANOR TO LARCHMONT, WESTCHESTER COUNTY, which constitutes CONTRACT NO. SPEC. SM-19.

Maps, plans, and specifications may be examined and obtained at the Bureau of Contracts and Accounts on the 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. and also in the office of J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y. and at the office of the consulting engineer, Robert W. Briggs, 271 North Avenue, New Rochelle, N. Y.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $16,825.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $850.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Superintendent of Public Roads

Bids: May 29, 1951

Raising the Top of Dike and Rehabilitation of Runways

THE PORT OF NEW YORK AUTHORITY
LA GUARDIA AIRPORT
CONTRACT LGA-220.002

Sealed proposals for the raising of the top of dike and the rehabilitation of runways at La Guardia Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111-8th Ave., New York 11, until 2:00 P.M., Tuesday, May 29, 1951, and thereafter in the Auditorium of the Authority at the same address until 2:30 P.M., on the same date, at which latter time and place said proposals will be publicly opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $25 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, May 10, 1951

Bids: May 21, 1951

High Lift Pumps

Sealed bids will be received until 9:00 a.m., EST, May 21, A.D., 1951, in the office of City Auditor and Clerk for: High lift pumps at Water Treatment Plant, Fort Lauderdale, Florida.

Bidding blanks may be obtained from the office of the Engineers. Plans and specifications are on file in the office of the Engineer.

A deposit of $25.00 for plans and specifications and of $15.00 each for additional copies of plans or specifications will be required. All deposits for plans and specifications will be refunded upon their return in good condition within ten (10) days of the opening of bids.

A certified check for 5% of the total amount of the bid, made payable to City of Fort Lauderdale, Florida, shall accompany each proposal as evidence of good faith and responsibility of the bidder. This check shall be retained by the payee as liquidated damages should the bidder refuse or fail to enter into a contract with the payee for the execution of the work embraced in the proposal, in the event the proposal of the bidder is accepted.

The Owner reserves the right to reject any or all bids.

F. D. RANKINS
City Manager

Bids: May 21, 1951

Wooden and Chain Link Fence Adjacent to Hangars No. 1 and 2

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-140.003

Sealed proposals for the construction of a wooden blast fence and the furnishing and installation of chain link fence and obstruction lights adjacent to Hangars No. 1 and 2 at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111-8th Ave., New York 11, until 11:30 A.M., Monday, May 21, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, May 10, 1951

(Continued on page 106)

OFFICIAL PROPOSALS
(Continued from page 105)

Bids: May 21, 1951

500,000 Gallon Elevated Water Tank

Sealed bids will be received until 9:00 A. M., May 21, 1951 A. D. in the office of the City Auditor and Clerk of Fort Lauderdale, Florida for an Elevated Water Tank for the Waterworks System.

This work involves the installation of one (1) 500,000 gallon elevated steel water tank of tubular tower construction. Alternate bids will be considered for one (1) 500,000 gallon reinforced concrete elevated water tank.

Bidding blanks may be obtained from the office of the City Engineer. Plans and Specifications for the work are on file in the office of the City Engineer, and copies thereof may be obtained at the office of the City Clerk upon payment of $25.00 for each set. Any bidder, upon returning such set promptly and in good condition, will be refunded his payment; and any non-bidder, upon so returning his set, will be refunded $15.00.

A certified check for 5% of the bid, made payable to the City of Fort Lauderdale, Florida, shall accompany each proposal as evidence of good faith and responsibility of the bidder. This check shall be retained by the City of Fort Lauderdale as liquidated damages, should the bidder fail or refuse to enter into a contract with the city of Fort Lauderdale for the execution of the work embraced in the proposal, in the event the proposal of the bidder be accepted.

The City of Fort Lauderdale reserves the right to reject any or all bids.

F. D. RANKINS,
CITY MANAGER.

Bids: May 23, 1951

Lincoln Tunnel

THE PORT OF NEW YORK AUTHORITY
CONNECTIONS TO PORT AUTHORITY BUS TERMINAL
NINTH AVENUE STORES EXCLUSIVE OF FOUNDATIONS
CONTRACT LT-120.006

Sealed proposals for the Ninth Avenue Stores, exclusive of foundations at the connections to the Port Authority Bus Terminal, New York City, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 2:00 P.M., Wednesday, May 23, 1951, and thereafter in the Auditorium of the Authority at the same address until 2:30 P.M., on the same date, at which time and place said proposals will be publicly opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $25 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.

New York May 10, 1951

Bids: June 14, 1951

Additional Water Supply

FOR
LATHAM WATER DISTRICT, COLONIE, NEW YORK

Sealed bids will be received by the Town Board of the Town of Colonie, New York, on the 14th day of June, 1951, for furnishing all labor, materials and equipment and constructing complete, a filter plant, aerator, pumping station and filtered water reservoir together with furnishing cast iron pipe, cast iron specials, valves and miscellaneous equipment for water supply mains and the unloading, hauling and distributing of cast iron pipe, cast iron specials, valves and miscellaneous equipment for the Project for Additional Water Supply from Stony Creek.

The Information for Bidders, Form of Bid, Form of Contract, Plans, Specifications and Performance Bond may be examined at the office of the Town Clerk, Town Hall, Newtonville, New York, and at the office of Keis & Holroyd, 257 Broadway, Troy, New York. Copies thereof may be obtained at the office of Keis & Holroyd, or from the Town Clerk, upon payment of $25.00 for each set. Any bidder upon returning such set promptly and in good condition, will be refunded his payment, and any non-bidder upon so returning such set will be refunded $20.00.

The Town Board of the Town of Colonie, New York, reserves the right to waive any informalities in or to reject any or all bids.

A certified check made payable to the order of the Town of Colonie, in the amount of Five Per Centum (5%) of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will, within five (5) days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so, he shall forfeit the deposit as liquidated damages and acceptance of the bid will be contingent upon the fulfillment of this requirement by the bidder.

The successful bidder will be required to furnish a performance bond satisfactory to the Town of Colonie, New York, in the amount of the contract, and having as surety thereon, such surety company or companies as are acceptable to the Town of Colonie, New York.

The work will be let in separate contracts as follows:

Section No. 4A—Furnishing Cast Iron Pipe and Cast Iron Specials.
Section No. 4B—Furnishing Valves.
Section No. 4C—Furnishing Miscellaneous Equipment.
Section No. 5—General Construction on Filter Plant, Aerator and Filtered Water Reservoir.
Section No. 6—Filter Plant Equipment, Furnishing and Installing.
Section No. 7—Plumbing at Proposed Filter Plant.
Section No. 8—Heating at proposed filter plant.
Section No. 9—Electrical at Proposed Filter Plant.

No bidder may withdraw his bid within 30 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

WILLIAM K. SANFORD, Supervisor

Keis & Holroyd
Consulting Engineers
Troy, New York
May 3, 1951

Bids: May 28, 1951

Sanitary Sewers and Appurtenances

RIVERSIDE MUNICIPAL AUTHORITY
RIVERSIDE NORTHUMBERLAND COUNTY, PENNSYLVANIA

Sealed bids or proposals, in duplicate, addressed to the Riverside Municipal Authority, 104 Mill Street, Danville, Pennsylvania, and marked "Bid for Constructing and Completing Sanitary Sewers and Appurtenances in Riverside Northumberland County, Pennsylvania," will be received at 104 Mill Street, Danville, Pennsylvania, until, but not after, May 28th, 1951 at four o'clock P.M., D.S.T., and at twelve o'clock Noon, on said date they will be publicly opened and read at 8:30 A.M., D.S.T., same day, by the Riverside Municipal Authority at the above address.

The approximate quantities involved are as follows:

30,138	Lin. Ft. Excavation and Refill for 8" Vitrified Pipe Sewer
6,789	Lin. Ft. Excavation and Refill for 8" Transite Pipe Sewer
6,163	Lin. Ft. Excavation and Refill for 6" Vitrified Pipe House Connections
1,000	Lin. Ft. Excavation and Refill for 4" Force Main Transite Pipe
30,138	Lin. Ft. Furnishing and Laying 8" Vitrified Pipe Sewer
6,789	Lin Ft. Furnishing and Laying 8" Transite Pipe Sewer
6,163	Lin. Ft. Furnishing and Laying 6" Vitrified Pipe House Connections
1,000	Lin. Ft. Furnishing and Laying 4" Transite Pipe Force Main
144	Lin. Ft. Furnishing and Laying 8" Cast Iron Pipe at Railroad Crossings
718	Vertical Feet Standard Manholes
9	Manhole Drop Connections
103	Manhole Frames and Covers
2	Railroad Right-of-Way Crossings for 8" Sewer Pipe including 36" Casing Pipes
1	Sewage Pumping Station Assembly Complete, less electrical wiring
250	6" Y Branch, 8" V.C. Sewers
32	6" Y Branch, 8" Transite Sewers
1,100	Sq. Yds. of pavement replacement
100	Sq. Yds. of sidewalk replacement
10,000	MFBM sheeting and shoring left in place by order of the Engineer
200	Cu. Yds. of Concrete
10	Cu. Yds. Miscellaneous Excavations and Test Pits
100	Cu. Yds. Excavating below Sub-Grade
50	Cu. Yds. Cinders
50	Cu. Yds. Gravel
200	Lin. Ft. Underdrain
500	Lin. Ft. Clearing trees and stumps between property lines on Avenue D and F
2,000	Cu. Yds. Rock Excavation

Any subsequent items that develop and are not otherwise covered.

OFFICIAL PROPOSALS

Plans, specifications and other contract documents may be obtained at the Office of the Riverside Municipal Authority, 104 Mill Street, Danville, Pennsylvania, upon payment of Twenty Dollars ($20.00) for each copy, which amount will not be refunded.

A certified check of the bidder drawn on a solvent clearing house bank made payable to Riverside Municipal Authority for an amount of Five Percent (5%) of the bid will be required for each bid. The Authority reserves the right to hold all certified checks and bids for a period of thirty (30) days before awarding contract.

A performance bond in the amount of the contract price and a labor and material payment bond in the amount of one-half the contract price, in the forms provided in the contract documents, will be required of the successful bidder.

The Riverside Municipal Authority reserves the right to reject any and all bids and/or to waive technical defects, as it may deem best for the interest of the Authority.

Bids when filed shall be irrevocable for a period of thirty (30) days.

RIVERSIDE MUNICIPAL AUTHORITY
104 Mill Street
Danville, Penna.

Sheppard T. Powell
Engineers
330 N. Charles St.
Baltimore 1, Md.

Bids: May 22, 1951

Demolition of Storage Tank

Sealed bids or proposals for the demolition of the 250,000 gallon Elevated Storage Tank of the Hartsdale Water District on Paret Lane will be received by the Town Board of the Town of Greenburgh at the Board Rooms of Said Board in the Lyceum Building, Broadway and Central Avenue, Tarrytown, N. Y., until 10:30 A.M., Tuesday, May 22, 1951.

Specifications may be obtained at the office of the Town Engineer, Lyceum Building, Tarrytown, N.Y.

Each bid must be accompanied by cash or certified check made payable to the Supervisor of the Town of Greenburgh in the amount of Five Hundred ($500.00) Dollars. Said deposit will be considered as a guarantee that the Bidder will enter into a contract for the proposed work if awarded to him and furnish the necessary bonds, and will be forfeited to the Town of Greenburgh if he fails to do so within the time specified. Deposit of the successful bidder will be returned as soon as the contract is signed and the necessary bonds delivered and approved by the Town Board. Deposits of unsuccessful bidders will be returned as soon as the contract is awarded.

The successful bidder will be required to furnish a Surety Company bond satisfactory to the Town Board in the amount of the contract, guaranteeing the successful completion of the work in accordance with the Plans and Specifications and the payment of all obligations arising thereunder. He will also be required to show to the satisfaction of the Town Board that he is carrying Workmen's Compensation Insurance as required by law, Public Liability Insurance with limits of not less than One Hundred Thousand and Two Hundred Thousand Dollars ($100,000-$200,000), and property damage insurance in the amount of One Hundred Thousand Dollars ($100,000).

The Town Board reserves the right to reject any or all bids or to accept any bid they deem to be in the best interests of the Town of Greenburgh.

By Order of the Town Board of the Town of Greenburgh
WILLIAM H. VAN DORN,
Town Clerk

Dated, Tarrytown, N. Y., May 1, 1951.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3400) will be received by Bureau of Reclamation, Sacramento, California, until May 29, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork for Folsom Powerhouse, warehouse, and penstock fabricating areas. The work is situated north of Folsom City, California. Principal items are approximately: excavation, 897,000 cu. yds.; gravel surfacing, 3,900 cu. yds.; guardrail and bulkhead timber, 3.0 M.b.m.; barbed-wire fence, 1.71 mi.; corrugated-metal pipe, 600 lin. ft.; and other work. Time allowed for completion will be 450 days. For particulars, address Bureau of Reclamation, Sacramento, California; or Building 1-A, Denver Federal Center, Denver, Colorado.

(Continued on page 108)

SEARCHLIGHT SECTION

Classified Advertising

EMPLOYMENT: "OPPORTUNITIES" :EQUIPMENT
BUSINESS: :USED OR RESALE

STRUCTURAL ENGINEERS

Designers with at least 5 years experience on concrete and steel structures for commercial, school, university, municipal and government buildings with office in Chicago, permanent and advancement opportunities. Please submit entire background of education and experience with date available.

CHILDS & SMITH
Architects & Engineers
20 N. Wacker Drive Chicago 6, Ill.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

CIVIL SERVICE

STRUCTURAL DESIGNER, Graduate Civil Engineer with at least five years experience in structural steel and reinforced concrete design. Experience on locks, dams and drainage structures desirable but not essential. Pleasant working and living conditions in city of 124,000 population. Salary open. Give full particulars, photo and references. Byron P. Lyons, Chief Engineer. Louisiana Department of Public Works, 11th Floor Capitol Building, Baton Rouge, Louisiana.

WANTED CIVIL Engineer and Transitman experienced in highway drainage and property surveys preferred. Give full details including experience, references and salary expected. Town of Fairfield, Engineering Dept., Town Hall, Fairfield, Conn.

POSITIONS VACANT

DRAFTSMEN—STRUCTURAL Steel Detailers experienced only. Alliance Engineering Co., 82 W. Washington St., Chicago, CE-6-2819.

CIVIL ENGINEER one to two years field layout experience desired. Must be able to read plans and take off quantities. This is an opportunity to connect with a progressive and growing concern. Give full details concerning age, education and experience in letter. Location usually in Eastern States. P-9657, Engineering News-Record.

BRIDGE DESIGNERS and Draftsmen, good pay for qualified men. Opportunities for advancement. Pleasant working conditions. Interesting projects. Write stating education and experience or apply in person. D. B. Steinman, Consulting Engineer, 117 Liberty St., New York 6, N. Y.

CIVIL ENGINEERING Technicians: Laboratory and field men experienced in soils, concrete and asphalt. Drillers; soil borings and diamond drilling; locations, East, Midwest and South. Furnish complete information including age, education, experience. Toledo Testing Laboratory, Toledo, Ohio.

CONSTRUCTION MAN for office to do quantity estimating, purchasing, and detailing. Nature of work is Heavy Construction, Industrial Building Construction, and Miscellaneous Government Work. Jobs under $500,000.00. Position permanent with well-established firm in Westchester County, New York. Submit data including training, experience, occupation during past three years, age, military status, wage requirement. P-9708, Engineering News-Record.

DETAILER AND Checker—Experienced in making and checking shop details for steel fabrication plant. All types of steel construction. State experience, references, and rate expected. Savannah Machine and Foundry Company, P. O. Box 590, Savannah, Ga.

WANTED MECHANICAL Engineer, age 35-50, should have had at least ten years experience in material handling, preferably in hoist equipment field. Also should have supervisory ability. Write full qualifications and salary requirements. P-9765, Engineering News-Record.

OFFICE MANAGER capable of handling all problems of large field office on force account type of construction projects. P-9676, Engineering News-Record.

SALARIED POSITIONS $3,500—$35,000

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R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N.Y.

POSITION VACANT

SUPERINTENDENT WANTED, experienced in deep hole marble quarrying with channelers. State age, experience, references, salary expected, etc. Replies confidential. P-9715, Engineering News-Record.

SELLING OPPORTUNITIES OFFERED

SALES ENGINEER with proven record selling engineering-construction services to industrial and process industries. Headquarters Atlanta, Ga., territory unlimited. Write fully SW-9646, Engineering News-Record.

SALES ENGINEER to work out of Atlanta covering Southeast selling architect-engineer services for schools, hospitals, office buildings, water & sewer projects. Sales experience not absolutely necessary. Must show in record responsible charge of architect-engineer work. Write fully SW-9645, Engineering News-Record.

POSITIONS WANTED

DIVER-FRANK Hefling, formerly Chicago, San Francisco: US or foreign work. Passport. Capable of deep water, 17 yrs. const., salvage, surveys, special jobs outfitted. Record underwater torch. Improved telephone equipped gear, safety power compressor, single unit lifeline. Experienced designer air lift dredging, dewatering. Miami, Florida, 268 S.W. 8th St., Phone 3-8089.

MAINTENANCE AND Construction of Streets and Sewers. Superintendent with 20 years experience, half of which with Municipal and public works. Streets—Sewers—Equipment—Shop. Have succeeded in reducing Maintenance Costs more than 50 percent. Will be available on permanent or consulting basis June 1st. Reply PW-9460, Engineering News-Record.

BUILDING CONSTRUCTION Superintendent or General Superintendent 45 years experience. Thoroughly familiar with all types of Building Construction. References. E. Harold Bowen, 3450 NW 79th Street, Miami 38, Florida.

CONSTRUCTION EXECUTIVE, 50. Capable of managing an entire business. Thoroughly experienced with buildings, machinery installation, process piping and heavy construction projects. Actual superintendent and project manager background on large jobs. PW-9580, Engineering News-Record.

REGISTERED ENGINEER, experienced, Master's Degree, desires position in hydraulic-hydrologic field. Eastern states or foreign. PW-9575, Engineering News-Record.

ENGINEER GRADUATE C.E., 15 years experience, and registered. Desires position on the design of reinforced concrete, foundations, and structural steel. Prefer New Jersey or New York City location. PW-9667, Engineering News-Record.

PROFESSIONAL ENGINEER New York license. Past eight years in charge of office for consultants. Designing parkways, expressways and misc. municipal projects studies and reports. Drainage design, estimate specifications prior twelve years similar to above, and seven years construction and surveys. Desires connection with present responsibilities, available soon. N. Y. C. preferred. PW-9710, Engineering News-Record.

SUPERINTENDENT: EXPERIENCE includes 30 years on housing, schools, industrial plants of all kinds, Cantonments and sewage. Salary $10,000. PW-9706, Engineering News-Record.

(Continued on page 108)

CONSTRUCTION ESTIMATOR
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16 Years Experience:
General Building Construction
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Dallas, Texas Phone - Edgemont 2-2247

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Experienced in construction of Blast Furnaces. Must be a good organizer, able to handle labor and qualified to exercise executive ability. Compensation commensurate with ability of individual.

Write and furnish full information regarding education, training, chronological details of experience, age, salary expected, etc. All replies will be considered strictly confidential.

P-9382, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

CORROSION ENGINEERS

Wanted by large consulting firm—Corrosion Engineers with minimum of four years experience in corrosion investigations and design of cathodic protection on pipe lines and lead cables in country and city networks. Must be graduate electrical engineer (or equivalent). Work involves extensive travel. Only applicants with above qualifications will be considered. Give full details of education and experience, and references in application.

P-9617, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

STRUCTURAL DRAFTSMEN WANTED

For detailing and checking. Prefer men with 3 to 5 years experience with companies which fabricate structural steel. Write or apply in person.

DRESSER EQUIPMENT CO.
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ON SEWAGE PROJECTS
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Harrisburg, Pa.

CONSTRUCTION SUPERINTENDENT

Superintendent experienced in office building or hospital type construction as well as factory type wanted for large project in Detroit area starting in August.

P-9675, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

PLANT & MAINTENANCE ENGINEER

A graduate engineer with broad experience in maintenance & plant engineering (work in chemical industry helpful but not essential). Willing to travel in U. S. To insure attention full details of age, experience, salary expected and when available for work must be given. Write Box ENR 1169, 221 W. 41 St., N. Y. 18, N. Y.

Additional Position Vacant Advertising on Page 109

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POSITIONS WANTED
(Continued from page 107)

CONSTRUCTION EXECUTIVE: Engineer; 15 years const. experience large industrial plants, gas compressor stations, hydro-electric projects, industrial water supply systems. Excellent administrator and contact man. Salary $10,000. PW-9699, Engineering News-Record.

REGISTERED ARCHITECT, Civil Engineer. 30 years varied experience, excellent references. Interested Top Job only. PW-9690, Engineering News-Record.

POWER ENGINEER U. S. Consulting Engineer of international standing could head hydro-electric department of engineering or utility group. Comprehensive professional record will be supplied to interested parties. Presently available. PW-9725, Engineering News-Record.

SELLING OPPORTUNITIES WANTED

ESTIMATOR, 36, concrete, masonry, etc., 6 years, salesman, college, driving to California June 1. Will execute commissions for contractor of represent equipment firm anywhere. SA-9698, Engineering News-Record.

SALES ENGINEER: Construction and Railroad Engineer, BSCE, age 26, desires Job as Sales Engineer for heavy equipment distributor or manufacturer. SA-9688, Engineering News-Record.

BUSINESS OPPORTUNITIES

Contractors:

I am interested in financial and active participation in a small construction company. My background: construction, engineering, degree Mass. Inst. of Technology, and business. Reply BO-9489, Engineering News-Record.

Wanted Aggressive Contractor

with practical know-how desires partner or working capital. Over twenty years experience all phases of contracting—estimating, purchasing, maintenance. Good organizer. Will consider young engineer as partner, or partner with capital. Will bear strictest investigation as to character, financial status, etc. Location: central New York. BO-9678, Engineering News-Record.

For Sale:

Civil Engineering & Surveying Business in growing industrial community in central New York. Write John D. White, broker, Paul Bldg., Utica 2, N. Y.

SPECIAL SERVICE

Right of Way

Clearing Wanted. By Contract. Will furnish men and equipment. Joe Railck, Box 186, James City, Pa.

MISCELLANEOUS

Architectural Firm,

Broad Street office, has private office with drafting board with 160 square feet available for Mechanical Engineer. Telephone answering service. $100.00 per month. M-9718, Engineering News-Record.

PATENT ATTORNEYS

Patent Practice

before U. S. Patent Office • Validity and infringement investigations and opinions. Booklet and form "Evidence of Conception" forwarded upon request. Lancaster, Allwine & Rommel, Registered Patent Attorneys, Suite 454, 815 15th Street, N. W., Washington 5, D. C.

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Today, more than ever before, you must know how to analyze building costs. If you want to become a successful builder, learn how to prepare a correct estimate in a hurry. Get in on the profitable work now available wherever you turn. Your success is assured if your estimates are right; otherwise you are licked before you start.

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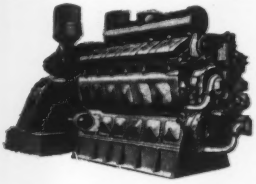

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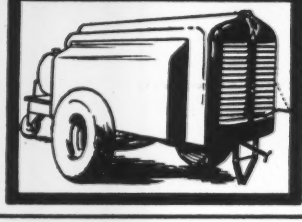

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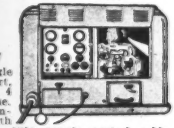

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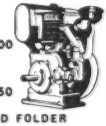

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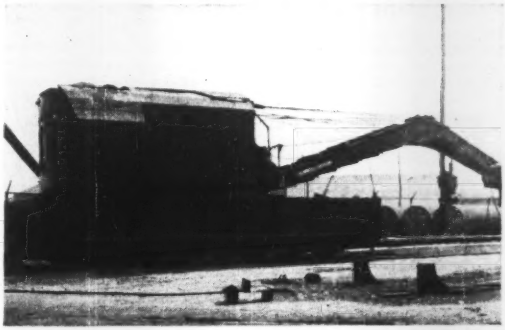

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FR-9612, Engineering News-Record
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New machine available in approximately 30 days.
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3—CATERPILLAR D-7 Bulldozers, Cable Blades
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Used Dragline Buckets
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Also all size shovels, draglines and bulldozers available for immediate delivery.

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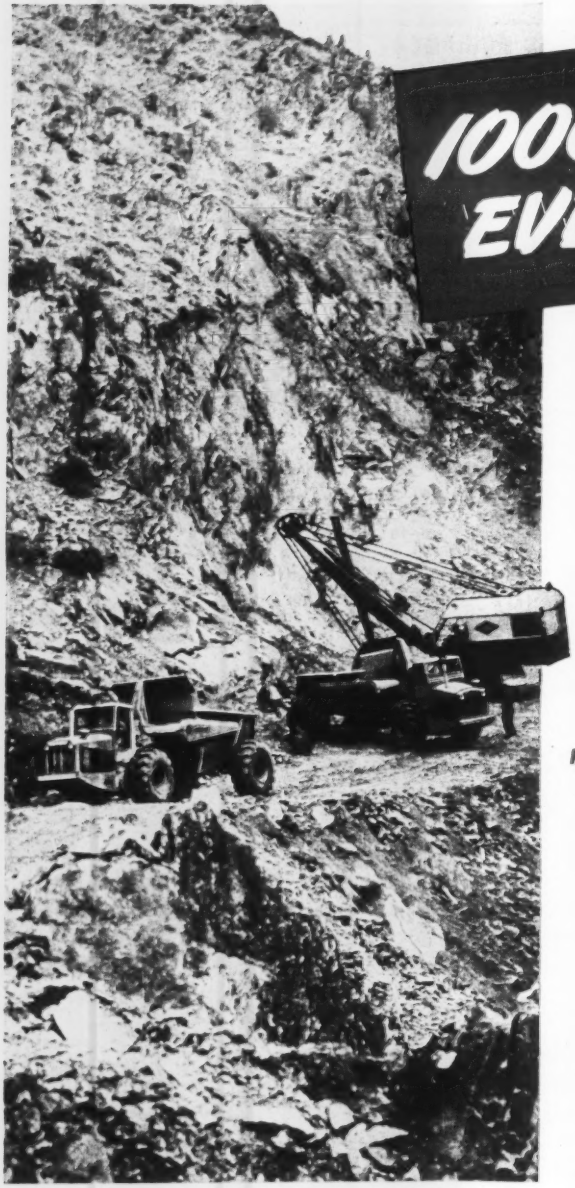

1000 YARDS EVERY SHIFT

ON one of the northwest's toughest highway jobs—relocating 4.4 miles of U. S 2 along the steep sidewalls of rocky Pine Canyon, near Wenatchee, Washington—Goodfellow Brothers, Inc., assigned the most difficult hauling to 3 GM Diesel-powered 16-ton Tournarockers.

"They are working out *very* satisfactorily," said James B. Goodfellow. Powered by 186 H.P. 6-cylinder "71" engines, the rear-dump Tournarockers hauled 9 to 11 bank yards each trip. On one 2800-foot, one-way haul, job records show that the three GM Diesel-powered units easily handled shovel production of 1000 yds. every 8-hour shift—helping to keep the job on schedule despite steep grades, rough haul roads and confined hauling conditions at altitudes of 2000 feet.

Power at Every Downstroke

There are good reasons for this performance—rugged design and precision manufacture, two-cycle operation, a smooth flow of plenty of power, quick acceleration and the always-ready-to-go qualities of General Motors Diesels.

These engines are offered as standard or optional equipment in over 500 kinds of power machinery by 120 different manufacturers. They are backed by the experience gained in building more than 315,000 Series 71 units totaling over 48,000,000 horsepower.

For any equipment you buy or re-power, it will pay to specify GM Diesel power.

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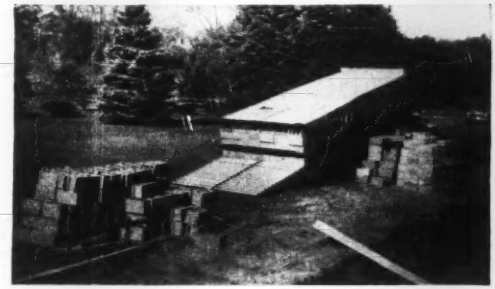
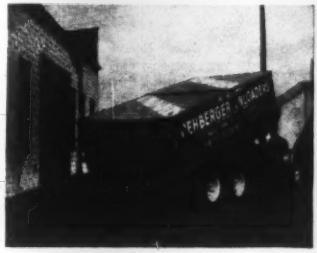
NEW PRODUCTS



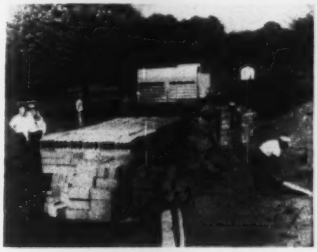
TRUCK UNLOADER speeds removal of concrete blocks

WINCH-and-brake assembly controls load till it reaches ground

TAILSKID acts as protection for load



WINCH LINE runs from forward sheave



BLOCKS are deposited quickly and neatly

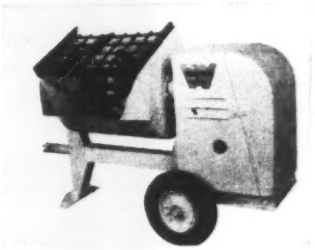
Unloaders permit discharge of concrete blocks without spilling or breakage

TRUCK UNLOADERS for concrete and cinder blocks are built in models to fit all truck chassis and to carry from 6 to 10 cubes. Movement of the load during unloading is controlled by a winch and brake assembly mounted under the forward end of the platform frame. This winch and brake assembly is controlled by two brakes, either air or vacuum actuated, on the truck chassis. After the load comes in contact with the ground surface, the winch lines are removed and the vehicle is drawn forward, leaving the load in one complete pile.

Platform and tailskid are raised by hydraulic rams, power for which is transmitted through a power take-off and pump mounted on the transmission. The tailskid when raised to the vertical position acts as protection for the load, and shortens the over-all vehicle length.

A special binding device holds the two rear cubes of blocks so that they act as one, preventing spillage during unloading. It is removed after the load is deposited on the ground.

Special advantages claimed for the Rehberger Unloader include one-man operation, no helper is required on the truck or at the job site, unloading time of 5 to 10 minutes, no breakage or spillage, and less capital investment.—ARTHUR REHBERGER & SON, INC., 320 FERRY STREET, NEWARK 5, N. J.

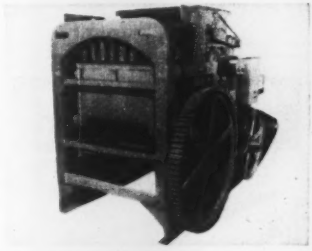


Hoe-type mixer

Available with either gasoline or electric power, the 3-ft Hoe-Boy mixer is designed primarily for inside work right at the point of application. Features include: Triple hoe action; adjustable triple-blade mixing hoes; safety grating and bag splitter; self-aligning self-lubricating shaft bearings; heavy-duty electric-welded frame; machine-cut sprocket; and roller-chain drive. The Hoe-Boy is 29 in. wide, and has a 36½-in. charging height and a 15-in. discharge.—CONSTRUCTION MACHINERY CO., GLENWOOD & VINTON, WATERLOO, IOWA.

Materials hoisting tower

Light-duty tower is composed of standard sectional scaffolding equipment. It comes complete with gasoline or electric power unit, guide rails, cable and pulley equipment, cage, and clutch. Available in heights to 120 ft.—WILSON-ALBRECHT CO., INC., 3568 WOODALE AVE., MINNEAPOLIS 16, MINN.



Block-making machine

Feature of the No-Pallet machine is that it automatically stacks 64 blocks on a rack, ready for removal and handling by a fork-lift truck. The machine is capable of producing 1,200

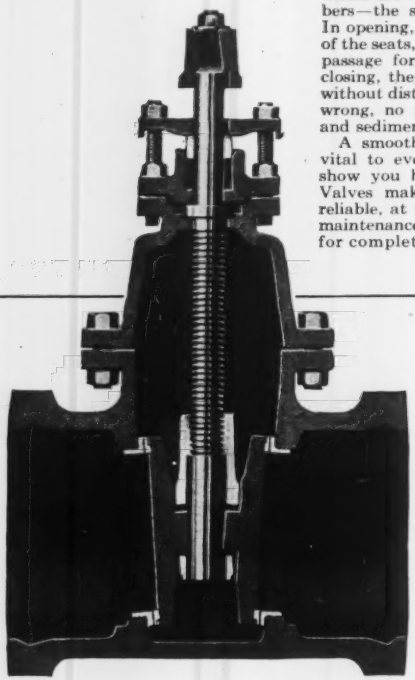
(Continued on next page)

RELIABILITY

R. D. Wood Gate Valves are especially designed for long underground service.

The well-known reliability of R. D. Wood Gate Valves is a direct result of their simplicity—the absence of parts that could give trouble. There are only three moving members—the spreader and two discs. In opening, the discs are lifted clear of the seats, leaving an unobstructed passage for the flow of water. In closing, they are wedged into place without distortion. No gadgets to go wrong, no pockets to collect scale and sediment.

A smoothly operating system is vital to every community. Let us show you how R. D. Wood Gate Valves make water systems more reliable, at the same time reducing maintenance to the minimum. Send for complete information today.



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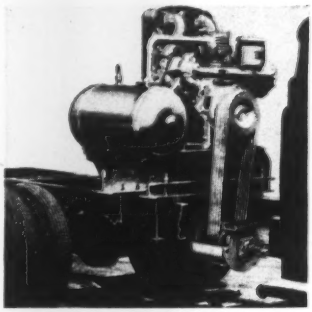
GROUT HOLES

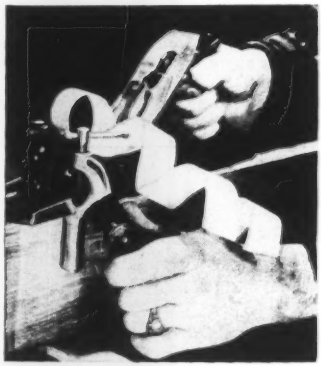
Tinney Drilling Co.
Grafton, W. Va.

blocks an hr. Under normal operation, the machine makes 3½ cycles per min, producing 6 blocks on each rack at each cycle.—General Engine Co., Inc., Gloucester, N. J.



Truck-mounted compressor

Model 125 compressor is now available for truck mounting and truck engine drive. The unit mounts on any of five popular makes of 1½ and 2-ton-rated trucks; adapts to special body designs; and derives power from the truck engine through a simple power take-off. Compressor is a Jaeger New Standard model, furnishing 125 cfm of 100-lb air. It is capable of driving two heavy duty or three medium-duty pavement breakers at full 90-pressure at the tools. Two levers in the truck cab control all functions. Compressing speed is 1,750 rpm (approximately 24 mph on the speedometer).—The Jaeger Machine Co., 200 Dublin Ave., Columbus 16, Ohio.



Plane cutting guide

Attachment for planes simplifies the cutting of square edges. The Square-Ezy consists of a clamp with a free-turning cylindrical sleeve that extends below the base of the plane. This sleeve acts as a fence and keeps the plane at a right angle to the side of

(Continued on page 123)

THE SPRING DOESN'T CARE!

When truck men talk shop, their opinions often vary as to how to make a tough haul easier. Yet, they *do* agree that when extra speed or power is needed, shifting must be *quick, easy* and *positive!* That's why so many prefer Timken-Detroit Two-Speed Double-Reduction Final Drives with Spring-Flex Power Shift!

The easy, instantly responsive control of the Timken-Detroit Two-Speed Double-Reduction Final Drive is not dependent upon the type of power unit used for actuation. It is controlled by the flexible, predetermined force of the spring *built into the shifting mechanism!* What's more, this rugged power shift is available with electric, vacuum or compressed air actuation —depending on your individual needs and preferences.

If you build or buy trucks, specify Timken-Detroit Two-Speed Double-Reduction Final Drives with Spring-Flex Power Shift! They're *proved* by years of trouble-free operation.

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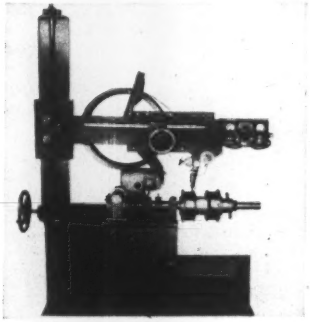
the board being planed. Hardwood knob on the side provides a firm grip and permits putting sideward and downward pressure on the plane. Uniform bevel is obtained by adjusting angle of the plane's blade.—Bratton Co., Edwardsville, Kans.

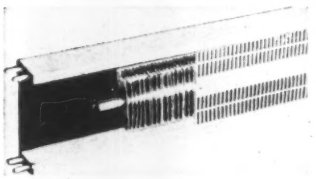


Automatic welder

Line of automatic welding and positioning equipment is designed for rebuilding tractor idlers and rollers, shovel rollers and shafts, crusher cones, and similar equipment. It utilizes the submerged arc principle of automatic welding, and an ac transformer-type welding machine in conjunction with a work positioner that handles parts weighing up to 750 lb and whose diameter is not less than 4 in. or greater than 36 in.—Mir-O-Col Alloy Co., Inc., 312 North Ave. 21, Los Angeles 31, Calif.

Ignition moisture-proofer

Automotive sealing substance protects ignition systems against corrosion, oxidation, and moisture. Elek-Trik seal is a heavy liquid that creates a neutral zone between electric current and the outside atmosphere when applied to distributor, coil, spark plugs, and battery. The application is guaranteed for 1 yr.—Elek-Trik Seal Laboratories, 151 W. Elm St., Chicago 10, Ill.



Baseboard radiator

Convect-O-Base radiator can be installed on the rough framework and installation completed while all piping is accessible for testing. It con-

(Continued on next page)

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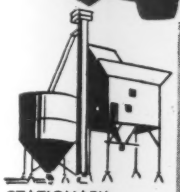
GEARED TO YOUR PRODUCTION NEEDS

Engineered FOR THE JOB

● Heltzel-engineered equipment provides that element of efficiency so important when man hours count highly. Each product in the Heltzel line is backed by 40 years experience in the concrete industry. Contractors and concrete producers know that Heltzel builds quality, high performance equipment. It stands the test of time and rugged operating conditions. Some of the Heltzel line of products are pictured here.

Specific information on any Heltzel equipment may be had by writing to our Warren office or contacting your nearest Heltzel distributor.


STATIONARY BATCHING PLANTS

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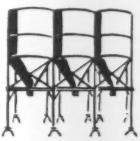
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WARREN, OHIO

THE JOB MUST GO ON!

MARLOW pumps help Bechtel Corporation cross difficult swamplands

This natural gas pipeline is being constructed between the Texas Gulf Coast and Joliet, Illinois, across all kinds of terrain. At one of the worst spots — this swampy stretch at Newport, Arkansas — the contractor had to put weights on the pipe to sink it below the mud. And under conditions as tough as they come, the Marlow pump shown, a Model 641 Self-Priming Centrifugal, stays on the job and helps construction move ahead smoothly.

This job furnishes another example of Marlow stamina and dependability. **REMEMBER!** Marlow pumps have been helping contractors solve difficult pumping problems for over a quarter of a century. Let Marlow pumps help you cut costs and safeguard your profits.

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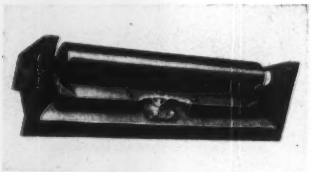
sists of three units—a back cover, heating section, and a front cover. The back cover nails directly to the studs or furring strips, and can be recessed or flush mounted on remodeling installations. It can be cut to any desired length, or mitered to fit any angle or corner. Heating sections mount on self-locking pipe supports and fit into holes provided in the back cover. Front cover slips into the upper slot of the back cover. It can be removed at any time without disturbing wall, quarter round, or back cover.—THE MINIMITE CO., 3700 W. ROOSEVELT ROAD, CHICAGO, ILL.



Conveyor return idler

Self-aligning idler is designed to prevent belt damage caused by roving at the edges on the return run where belt is closely confined between frame and supports. It also assures that the belt is centered when entering the tail pulley. The 33RA idler is mounted on a roller-bearing turntable, with the entire assembly tilted 45 deg in the direction of return belt travel. The idler can be used with horizontal or inclined conveyors.—CHAIN BELT CO., DEPT. PR, 1633 W. BRUCE ST., MILWAUKEE 4, WIS.

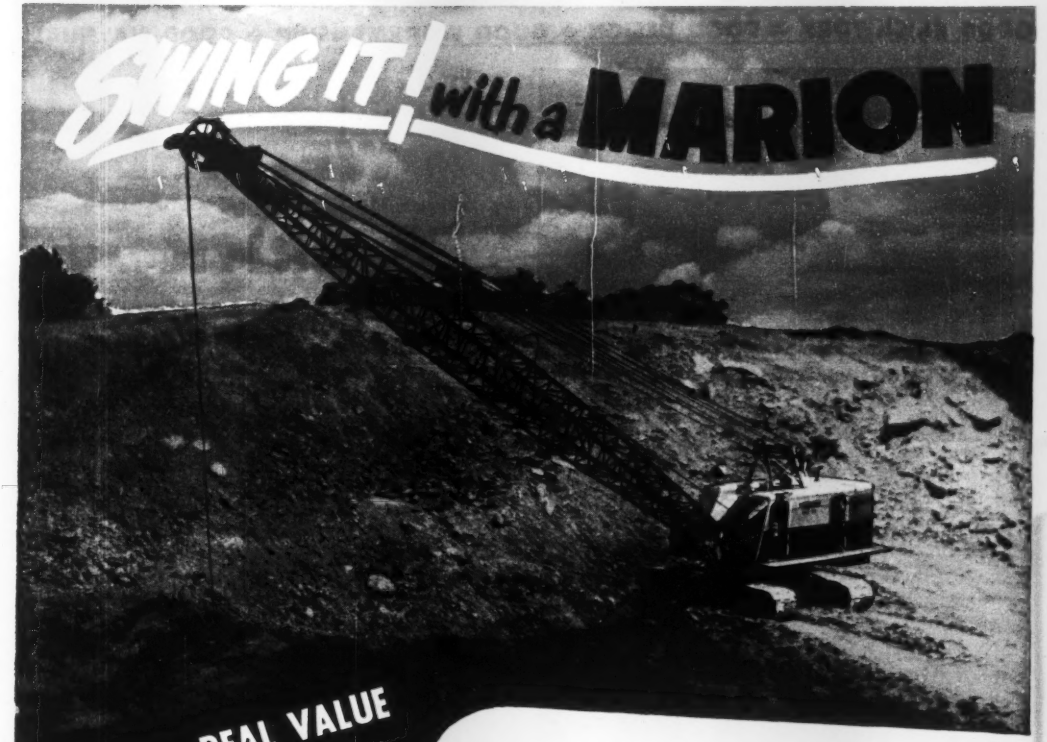
New Product Briefs

Faceshields feature interchangeable visors for specific types of hazards. Made by: Mine Safety Appliances Co., Pittsburgh 8, Pa.

Horizontal circulators for forced-circulation hot-water heating systems in large buildings is available in three sizes. Made by: Taco Heaters, Inc., Providence 3, R. I.

Plastic finish for Monowall predecorated panelboard (Armstrong Cork Co.) replaces paint-type finishes previously used. It produces a lustrous, durable surface.

Self-sticking safety signs are coated with silicone to protect them from dirt, grime, moisture and weather. Quik-Labels are made by: W. H. Brady Co., Chippewa Falls, Wis.



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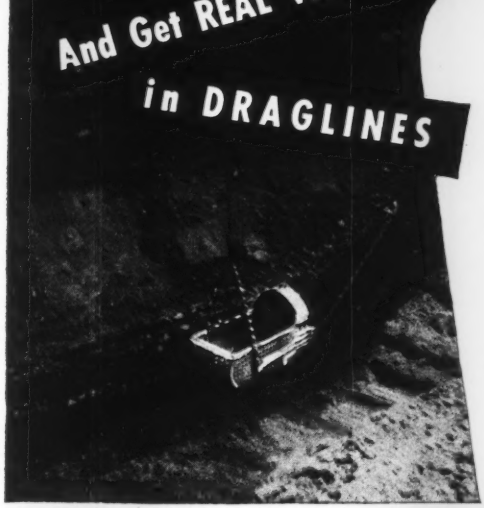

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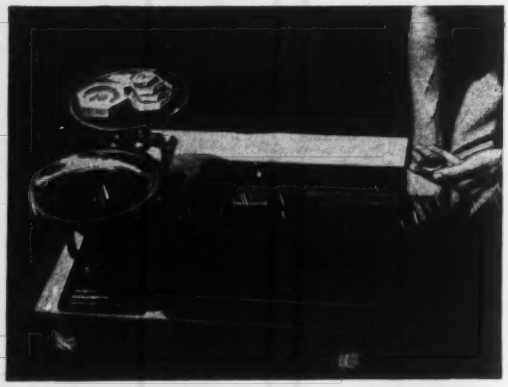
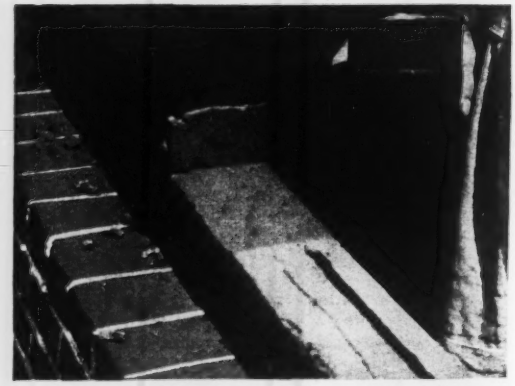


When placed flat in ¼-inch of water for one minute, a brick should gain not more than 20 grams (7/10 oz.)



A good bond was not secured here because the brick on which the mortar was spread had sucked the mortar dry, before the brick was laid.

A good bond was secured here because the mortar was not sucked dry too fast.

WET THE BRICK TO SECURE A WATERTIGHT BOND

WE SUGGEST THAT—

Brick taken from the scaffold should be tested for rate of absorption, as illustrated at top left. If the tested brick gains more than 1 ounce in weight, all brick should be thoroughly wet just before they are used.

A good initial bond between brick and mortar depends (1) upon the suction rate of the brick, and (2) the water-retaining capacity of the mortar.

If the absorption rate of the brick is too high at the time they are laid, they will suck the water out of the mortar too fast, even though the mortar has high water-retaining capacity. A thorough wetting of the brick just before they are laid is the only way to be *sure* they will have a low enough rate of absorption.

BRIXMENT

Brixment mortar has higher water-retaining capacity and stays soft and plastic longer when spread on porous brick. This helps secure a good, watertight bond.

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MANUFACTURERS' PUBLICATIONS

Fenestra building panels—Steel and aluminum building panels are described in this 38-p data book. It provides detailed panel-selection tables as a guide to choice of the most economical Fenestra panel for a given span and load. Detail section has been revised to represent current practice. The catalog contains numerous photos of new job installations. Complete descriptions are listed for various wall, deck, and floor panels. — DETROIT STEEL PRODUCTS CO., 3159 GRIFFIN ST., DETROIT 11, MICH.

Meter-repair manual – Informative handbook contains illustrated step-by-step instructions for repair and testing of Trident split case water meters. This 16-p booklet contains complete instructions for setting up a meter repair shop—including photographs and floor plans of typical shops, a list of required tools and equipment, and suggested meter record forms.—NEPTUNE METER CO., 50 W. 50TH ST., NEW YORK 20, N. Y.

Rubber conservation—Complete plan for obtaining maximum life from industrial rubber products has been evolved by Quaker. Details are contained in: A conservation manual listing suggestions on care and maintenance of rubber products; a wall chart that lists and explains vital necessary steps in conserving belting, hose, and packings; and maintenance memos to be distributed periodically.—QUAKER RUBBER CORP., DIV. H. K. PORTER CO., INC., TACONY & COMLY, PHILADELPHIA 24, PA.

Roof maintenance—Brochure entitled "Solving Roof Problems" thoroughly explores the subject, and discusses in detail: Types of roofs, how they are built, factors that enter into their deterioration, and how roof troubles can be diagnosed and treated. For easy reference, the booklet is divided into 15 sections and provides a table of contents.—THE TREMCO MFG. CO., 8701 KINSMAN ROAD, CLEVELAND 4, OHIO.

Lubricated plug valves—Manual is packed with piping, wiring, mounting, and installation data for power-operated lubricated plug valves. Manual V-214 is a complete compilation of technical data covering the use of pneumatic, hydraulic, and electric operators for this type of valve. Included are typical piping diagrams,

(*Continued on page 131*)

• *Contractors & Engineers*

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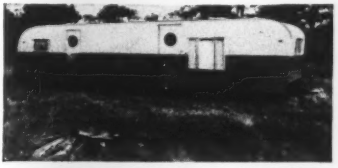

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arrangements for both side and top-mounted motor controls, closing speeds, wiring data, and an extensive group of photos of actual installations. —Rockwell Mfg. Co., 400 N. Lexington Ave., Pittsburgh 8, Pa.

Jaw crushers—Construction and operating data for jaw crushers are contained in this 8-pager. Data presented cover: Selection of the primary crusher; crusher capacity determines operating profit or less; pitman and jaws; jaw adjustment; bearings, and care and lubrication. A complete list of specifications and general data, and a table of capacities, complete the catalog.—Diamond Iron Works, Inc., 1766 N. 2nd St., Minneapolis 11, Minn.

Roller chains; sprockets—Catalog RS-50 covers a complete line of roller chains and sprockets carried as stock items. It provides complete specifications and engineering reference tables on American standard roller chains, sprockets, and attachments. Dimensional data, strengths, and weights are supplied for allied products, such as block chain, cable chain, and flexible couplings.—Whitney Chain Co., 222EN Hamilton St., Hartford 2, Conn.

Molded terminal blocks—Solderless-type Bepco molded terminal block is described in a 1-p bulletin. A special feature described is that this block eliminates wrapping wires around studs or applying terminal to wire ends. The data sheet lists typical combinations that can be accommodated by a single terminal, and describes other features.—Buchanan Electrical Products Corp., 1290 Central Ave., Hillside, N. J.

Diesel engines—Heavy-duty diesels for all types of haulage units are listed in 12-p Bulletin 1526. Outstanding features are listed with special emphasis on Dyna-Swirl, a mono-lobe low-pressure-rise combustion system. Specifications are listed for engines ranging from 185 to 350 hp. On-the-job photos coupled with short case histories illustrate typical applications of these diesels.—The Buda Co., Harvey, Ill.

Copper flashings—Two bulletins released by Chase describe a copper-base flashing expansion joint, and a one-piece thru-wall copper flashing and cap flashing receiver. Both catalogs describe these flashings in detail, listing their particular construction and installation advantages.—Chase Brass & Copper Co., Inc., Waterbury 20, Conn.

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Letter from GUADALAJARA

Marking Guadalajara as probably the fastest growing city in today's Mexico are the newly inaugurated hydro-electric plant that will eventually furnish this old pottery center with 72,000 kilowatts for its expanding industries, and its new $1,400,000 airport, the "best" in all Mexico—high in importance to the mountain-locked area.

These two projects have come to completion under the energetic leadership of cocky young Governor Jesus Gonzallez Gallo.

Forty kilometers from Guadalajara is a 500-meter drop in the Rio Santiago where a reinforced concrete dam has been built to a height of 80 feet above the river. Water from the river is conducted under pressure through a tunnel of 4.35 meters in diameter to four steel penstocks, 2.22 meters in diameter, which deliver the water to four vertical turbines of 18,000-hp each under a head of 500 meters.

These connect with four generators of 12,800 kw each. Twelve transformers, in sets of three, transform current from 13,800 volts to 70,000 volts for transmission. These installations with others available in the area give Guadalajara some 100,000 kw. Plans now are to raise this eventually to 1,000,000 kw.

Cost of the plant is $10,000,000.

Guadalajara, "Pearl of the West", has leaped in population from 100,000 five decades ago to more than 300,000 today. Now it is only a nose behind Monterrey, long Mexico's second city, an industrial center of 329,000 residents.

• A sudden stir—In waking the 400-year-old city, Gonzallez has instituted a whirlwind of re-building, re-planning and general industrial expansion that has swept churches and buildings out of its path to widen streets, turning the historic town into a modern Main Street.

In addition to the new power plant and the airport, Guadalajara is building a water system to handle a population of one million (its present goal), a new rail terminal, and good highway and rail connections with the Pacific ports of Manzanillo and Puerto Vallarta.

At its own $5,000,000 Instituto Technologico of the University of Guadalajara the city is training the skilled workers and civil engineers needed for industrial expansion.

COLIMILLA, new $10,000,000 hydro-electric plant, is constructed on the Rio Santiago 40 kilometers outside of Guadalajara. The plant will provide power for new industry. When full equipment is installed it will eventually supply 72,000 kw for Cia. Electrica de Japala. President Miguel Aleman himself visited Guadalajara for its formal inauguration this year.

Already a big industrial impetus is felt in this city. Sixteen new industries began operations in 1949; 10 new plants opened in 1950. Now Gov. Gonzallez is looking to foreign firms to come into the city to start even larger operations.

Firms from the United States will have every cooperation, he says. They will find cheaper power, plus tax and land concessions. Labor costs for trained and skilled operators will also be lower than in some other places.

• Business moves in—A number of United States firms have opened shop in the city: U. S. Celanese Corp. through its Mexican subsidiary, Celanesa Mexicana; Corn Products of Chicago; Sears, Roebuck; Cocoa Cola; Pepsi Cola, and several agricultural implement firms from the U. S.

Modernization has also moved forward with the completion of a four lane super-highway to the new airport, a subterranean street crossing at the principal intersection of the city where street venders have been installed in newly built shops, a new "cut-off" highway to eliminate truck traffic from going through the business section, the rebuilding of a sewerage and drain system which is expected to serve the city for 50 years, complete paving of all streets in the city, construction of new parks in the center of the city and elsewhere, a new freight terminal as well as a new passenger terminal and now, on the drawing board, a new bus terminal.

Firms interested by the facilities of this progressive Mexican town can write to Dr. Ricardo Zaldumbide, head of the Division de Investigation y Promocion Industrial, Instituto Technologio, Guadalajara.

Visitors probably will come to the city via the new airport with its two runways, the largest 2,200 meters in length, the second 1,800 meters.

With the cooperation and, sine quid non, financial help of the Communications ministry of the federal government, Governor Gonzallez has built the finest airport in Mexico for his state.

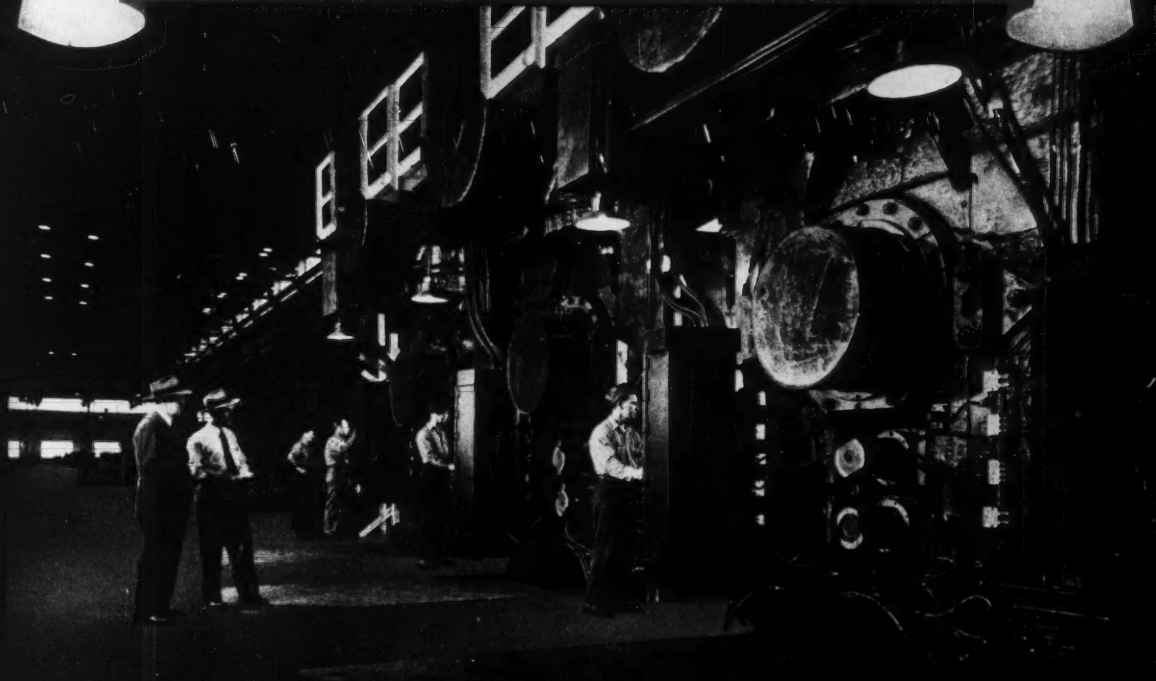
The central terminal building is two stories high with a control tower extending three floors above that. It is linked with the city by the highway already mentioned, and the grounds are already completely landscaped.

Thus the active city is only one hour from Mexico City by DC-6, and on the main route to Lower California.

So strategically located, this modern Mexico of which Guadalajara is prototype seems destined to success. Pottery is in the background. The city has risen from its ancient siestas to sieze the standards of speed and efficiency, moving into the latter half of the 20th Century with energy equal to any task ahead.

EVEN A SEARS, ROEBUCK to grace the modern street. This is a subsidiary of the Chicago firm. In keeping with the layout of the new city, the major portions of Guadalajara are modern in design, with old Spanish sidewalks.

Good Performance of Floors and Grout Assured In Crucible Steel's New Midland Plant because—



Three-stand — 4-high tandem mill by United for cold rolling stainless and alloy steel in new $18,000,000 plant of Crucible Steel Co. of America, Midland, Pa. Plant comprises three-quarters of a mile of connected buildings. Engr.—private plans; Gen'l Contr.—Rust Engineering Co., Pittsburgh, Pa. Non-colored and black Masterplate Floors in mill, tile red in motor room. Embeco grout for equipment.

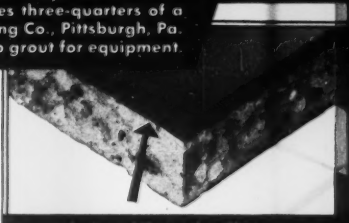
All Concrete Floors Are MASTERPLATE . . . All Equipment Is Grouted with EMBECO

Many leading steel plants, like Crucible Steel Company's new hot and cold rolled stainless sheet and strip mill, have assured themselves of good performance and long-term economy in *floors* — by installing Mastexplate Iron-Clad Concrete Floors; also in *equipment* grout — by using Non-Shrink Embeco.

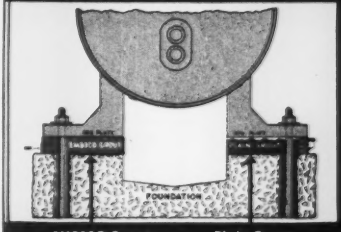
Masterplate Floor . . . is a concrete floor with an iron-armored surface about one-eighth inch thick produced with Masterplate at time floor is installed. Wears at least 4-6 times longer than a plain concrete floor. Other features — spark-safe, static disseminating, non-dusting, corrosion resistant, easy-to-clean, non-slip, economical. Eleven colors.

Non-Shrink Embeco . . . when added to grouting mortar overcomes shrinkage, the principal cause of failure in machinery grouts. Embeco also produces easy placeability, early strength to avoid long costly shut-downs, 7 day normal strength in 24 hours with increased ultimate strength, and maximum bearing for bedplate.

Full information on Masterplate and Embeco on request.



Section of Masterplate Floor. Note Thickness of Armored Surface.



EMBECO Grout Is Non-Shrink

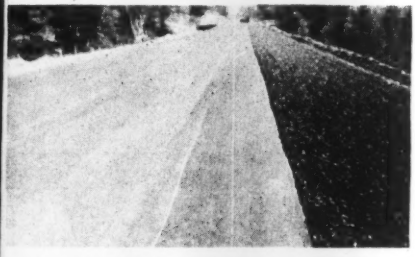
Plain Grout Shrinks

the MASTER BUILDERS Co.

CLEVELAND 3, OHIO TORONTO, ONTARIO

Removing a bottle-neck from New York-Boston highway

New 24-foot Texaco Asphaltic Concrete pavement for one-way traffic on Massachusetts State Highway 15. Note traffic using old road at left.



At right of Texaco Asphaltic Concrete pavement, a 10-foot parking strip is being constructed with Texaco Asphalt Penetration Macadam.

The highway linking New York City with Boston is one of the most heavily traveled in the country. To cut down travel time and provide greater safety for motorists using this highway, Massachusetts is converting 10 miles of Route 15, beginning at the Connecticut line, from a narrow, winding two-way road into a modern, divided superhighway.

Massachusetts specified a combination of asphalt types of construction for its important Route 15 project. Traffic moving in each direction will be served by a 24-foot wearing surface of hot-mix, hot-laid Asphaltic Concrete, laid in two 1½ inch courses. The foundation consists of 4½ inches of Asphalt Penetration Macadam, over a 12-inch gravel sub-base. On one side of the Asphaltic Concrete surface is a 10-foot Asphalt Macadam parking lane, with a 3- foot Asphalt Macadam shoulder on the other side.

From the construction of a superhighway down to the application of a dust-layer to a secondary gravel road, Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils provide the road builder with a material exactly suited to his needs. Every Texaco Asphaltic product comes from selected crudes. Into its refining goes the broad experience acquired in meeting the varied asphalt requirements of America's road builders during the past 45 years.

Helpful information on all types of asphalt construction has been incorporated in two Texaco booklets, copies of which can be obtained free by writing our nearest office.

General contractors on the Massachusetts Route 15 projects are Kelleher Brothers, Inc. and White Oaks Company. Texaco Asphaltic Concrete paving is being laid by Bayer-Mingolia Company, with asphalt supplied by Wachusett Asphalt and Tar Company. Texaco Asphalt for Asphalt Macadam was applied by Lake Asphalt & Petroleum Company.

THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17

Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Philadelphia 2 Richmond 19

TEXACO

REG. T. M.

TEXACO ASPHALT